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An investigation of the Four Area Curriculum Extension and Enrichment Model for Gifted Education as viewed through the Cartesian, Socialist and Deep Ecology epistemologies.

A dissertation
presented in fulfilment
of the requirements for the degree of
Master of Philosophy

by

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ABSTRACT

Because giftedness is a complex, little understood concept which has become politicised, it was deemed necessary to evaluate the Four Area Curriculum Extension and Enrichment model in terms of three epistemological focuses: Cartesian, Socialist and Deep Ecology.

Reasons for the selection of these three epistemologies are discussed after which the traditional Cartesian, homunculus view of giftedness is shown to be flawed and a case made for reconceptualizing giftedness to confirm its collective, socially constructed, immanent nature, grounded in the existential human condition.

The rationale behind, and design of the Four Area model as reflected in the guide to schools is shown to reflect the Deep Ecology epistemology. The philosophical statement, goal and aims of the guide are shown as clashing with the Deep Ecology ideology. In order to avoid epistemological dissonance, a reformulated statement of intent for the Four Area model which merges the Cartesian, Socialist and Deep Ecology epistemologies into a unitary aim is suggested.

The design, short-term success and appropriateness of each of the four Areas of provision are analyzed and evaluated in the light of critical theory as also questionnaires and annual reports completed by principals and co-ordinators. Modifications to aspects of the Four Area model are recommended which, it is argued, will give it greater contextual relevance and make it an appropriate medium for promoting giftedness for all South African pupils.

Finally it is argued that intelligence and genius should be viewed, not as personal capacities, nor as social constructs but metaphysically as a function of gathering complexity.

CHAPTER ONE

RESEARCH AND THE FOUR AREA ENRICHMENT MODEL: AN OVERVIEW

1.1 Introduction

Research in the fields of linguistics, anthropology, sociology, physics supports the claim that human beings do not inherit an objective, measurable reality outside of themselves but rather construct symbolic worlds within which they function. Three epistemologies or ways of knowing and experiencing: Cartesian, Socialist and Deep Ecology[1], are introduced (1.2). The primary research methodologies associated with each epistemology (i.e. empirical; critical analysis; triangulation and bootstrapping respectively), and their application to the present study are briefly discussed (1.3). The Four Area Enrichment model is placed in its historical and socio-political contexts (1.5, 1.6 and 1.7). Finally, the scope and nature of the study is summarized (1.8).

1.2. Perception, language and the nature of reality

Philosophers, lay people and researchers have assumed that perception, thought and language allow humans to reconstruct an objective verbal representation of the world in space and time. If it were indeed so that there is but one version of the world, researchers could make accurate statements about that world, draw indisputable inferences, and make reliable predictions.

This view of an objective world that is common to all has, however, been brought into question by theorists such as Giambattisa Vico; linguists such as Ferdinand de Saussure, Edward Sapir and Benjamin Lee Whorf; anthropologists such as Claude Lévi-Strauss and Gregory Bateson; philosophers such as Emmanuel

[1] Capital letters have been used to indicate epistemologies.

Kant, Stuart Hampshire; physicists such as Niels Bohr, Max Born, Werner Heisenberg, Henry Stapp. A brief, selective review is necessary.

1.2.1 Perception

It is generally assumed that actual events occur in an hypothetical world-in-itself. Emmanuel Kant called this world-in-itself, the Noumenal world. Humans ascribe causality to these events. The causal world which is then extracted, constructed, or constituted becomes their objective world. But it is not the objective world in the Nouminal sense; its objectivity has been subjectively created. This subjectively created objective world, Kant called the Phenomenal world:

> We can know the world precisely because we ourselves have *constituted* or constructed it...We know it because it is, in a sense, subjectively created by us, just as the red pavement seen through the red pane of glass is not independent of this pane of glass. The world experienced in our perception and our thinking is therefore an Appearance, just as the pavement *appears* red to us...the world as it appears to us, is called the *Phenomenal world.* (Coetzee undated:18)

The Phenomenal world that humans construct is not only ideational. The physiological perceptual system itself is inexorably part of that filtering process. Hoffman (1983) and Eddington (1984), for example, discovered that the visual system does not passively transmit signals but organizes and interprets them. Vision is therefore essentially a process of inference.

> We are acquainted with an external world because its fibres run into our consciousness; it is only our own ends of the fibres that we actually know; from those ends, we more or less successfully reconstruct the rest, as a palaeontologist reconstructs an extinct monster from its footprint. (Sir Arthur Eddington 1984:185)

1.2.2 Language and thought

Edward Sapir, who studied the many differences that exist between the numerous American Indian languages, and the more radical differences existing between the American Indian languages and the languages of Europe, showed that language does not reflect an a priori world 'out there' but is, instead, a groove or channel that forces individuals to perceive the world in a particular way.

Whorf extended Sapir's ideas by comparing the conceptual view of the natural order as reflected in the American Hopi Indian language with the world-view as reflected in the language of a standard average European language. He found major qualitative differences[2] which led him to conclude that language is not a mirror reflection of the world 'out there' but is, instead, culturally determined.

1.2.3 Social reality

Not only does language play an important mediating role in the individual's conceptualization of reality. Esland (1971:75) pointed out that the traditional objectivist view of reality

> ...ignores the intentionality of human action and the entire complex process of intersubjective negotiation of meanings. In short it disguises as given a world that continually has to be interpreted.

Hawkes (1977:32) suggested that the entire field of social behaviour encodes reality along lines similar to language. In fact, he concluded, culture might itself be a language.

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[2] According to Whorf, European languages, *inter alia*, reflect a 'bipolar view of the world' where 'objects' (nouns) exist in space, and 'events' exist in time. This means that phenomena which for us would be expressed by nouns, for the Hopi could only be expressed as verbs: for example, 'lightning, 'wave', 'meteor', 'puff of smoke'. (Flower 1966:63)

1.2.4 Research

Researchers appear seldom to realize, or if they do, seldom acknowledge how subjective their procedures and findings are:

> ...despite appearances to the contrary the world does not consist of independently existing objects, whose concrete features can be perceived clearly and individually, and whose nature can be classified accordingly. In fact, every perceiver's *method* of perceiving can be shown to contain an inherent bias which affects what is perceived to a significant degree. A wholly objective perception of individual entities is therefore not possible: any observer is bound to *create* something of what he observes. (Hawkes 1977:17)

And:

> Some scientists are unable to conceive that by their methods they screen out the type of information they do not want, in order to bring into outline the type of information they do. (Laing 1976:98)

1.2.5 Physics

For centuries the laws of Kepler, Copernicus and Newton which were based upon the principle of a tangible, measurable, objective world 'out there' have proved themselves to be accurate and practical. However, Heisenberg's 'uncertainty principle' (based, also, upon research into 'probability waves' conducted by Max Born) brought into question the objectivity of the scientist by demonstrating that a physicist cannot observe an electron without affecting it:

> One of the most important features of the uncertainty principle, and quantum mechanics in general, is that the observer has started to play an active role in determining physical outcome. It is the disturbance created during the act of observation that gives us the uncertainty principle. This, at least to some extent, destroys the objectivity of the classical physicist; the complete separation of matter and mind is given up. (Goswami 1979:459)

Quantum physics demonstrated, therefore, that mechanistic laws are:

> ...valid to that degree of accuracy to which the phenomena concerned can be described by these concepts. (Heisenberg 1985:7)

So, despite the hope of finding an absolute subatomic world of quarks etc. physicists seem, instead, to have discovered that the physical world that humans perceive rests on an abstract, relativistic, chimeric world of uncertainty, probability, chaos, non-locality. It is this relativistic, observer-created world which will be discussed in the following section.

1.3 Epistemologies and world-making

The word, epistemology, comes from two Greek words: *epistēmē*, meaning knowledge, and *logos*, meaning discourse (Chambers 20th Century Dictionary). When people speak about their epistemological worlds, they are referring to the way in which they understand their world. This understanding encompasses their conceptual framework (beliefs, thoughts etc); ethical orientation; values and norms; metaphysics (Roux 1972:65).

In 1.2 it was shown that the world is not perceived, calibrated, understood in the same way by all humans. In fact, as far back as 1759, Vico pointed out that by casting the world in a form of a 'metaphysics' (Vico quoted in Hawkes 1977:12) of metaphor, symbol and myth, humans create their own societies and institutions in their own mind's eye, and that these institutions and societies, in turn, create and mould the citizens. Nelson Goodman (1978) observed that humans are 'world makers'. By world-making is meant the capacity which humans possess to construct symbolic worlds within which they can function. Symbolic world-making is usually the result of, or results in an epistemological framework. Symbolic world-making, and living out an epistemology can often be seen as part of the same process.

According to Bateson (1972:461-88), epistemologies, like maps, are approximations or versions of an assumed aboriginal, Nouminal reality and can never be the territory itself. The Hopi symbolic world, as Whorf discovered (1.2.b) differs, for example, from the Western symbolic world.

> What is on the paper map is a representation of what was in the retinal representation of the man who made the map; and as you push the question back, what you find is an infinite regress, an infinite series of maps. The territory never gets in at all. The territory is *Ding an sich* and you can't do anything with it. Always the process of representation will filter it out so that the mental world is always maps of maps of maps, ad infinitum. All 'phenomena' are literally 'appearances' (ibid 461)

Bateson claimed that if humans get their epistemologies (or their symbolic, ideological, Phenomenal maps) 'wrong', they run the risk of serious problems in the future. He lamented the fact, however, that humans seldom realize that their epistemologies are 'wrong' until things start going wrong in their lives. Then only do they question the premises upon which their epistemologies are based.

Researchers are also required to acknowledge that their topics are being viewed through particular, very personal epistemological lenses. Which means that their instruments, procedures, methodologies etc. will often be accurate only in relation to their chosen symbolic framework. However, by confining their enquiry to only one framework they run the risk of having their conclusions nullified by researchers basing their methods on counter-epistemologies. It is therefore incumbent upon researchers to consider which epistemological frameworks are relevant to their field of study and, where appropriate, to approach their topic from a variety of angles, using a selection of the most appropriate instruments and methodologies.

Three epistemologies were selected as having a bearing on the present study: Cartesian, Socialist and Deep Ecology. Dividing reality, as it were, into these three seemingly

arbitrary categories might be problematic, especially considering the fact that there is a significant degree of overlap discernible between categories or epistemologies. Hopefully, however, the *raison d'être* for each epistemology will become evident as each is discussed in this and the following chapter.

1.3.1 The Cartesian epistemology[3]

René Descartes', Le Discours de la Méthode (1637) was to become one of the most influential works in modern times. In his treatise Descartes asked what was the single incontestable point from which all else could be derived with certainty, and concluded that it was the 'I' which was asking the question. Thus he arrived at his famous statement: 'Cogito, ergo sum' (I think, therefore I exist). Closely related to that 'I' was a separate substance he called, body. For Descartes, the essential nature of 'I' was conscious thought, God-like reason, or mind; while the essential nature of 'body' was physical matter. (Roux 1972:26-31) Descartes' theories laid the foundation for what was to become, Cartesian Dualism[4].

By splitting reality into *mind* which was regarded as separate from, but also conscious of, an objective world called *matter*, Descartes helped create an epistemology which ascribed to reason or thought the function of observer, measurer and (through mediation) manipulator of matter. Sir Isaac Newton, writing fifty years later assumed a Cartesian view of the

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[3] The researcher has attempted to identify the central epistemology which, in his opinion, underlies the Western world-view. The Cartesian epistemology was selected because much of what is taken-for-granted in the West can be traced back to the eighteenth century Enlightenment. Although there were a number of contributory factors, the researcher believes that it was René Descartes' philosophy which provided the theoretical foundation and intellectual impetus for the Enlightenment (2.3.1).

[4] Dualism, as an epistemology, was not new. As far back as pre-Socratic period, people were seen as possessing two parts: a mortal body and an eternal soul. It was, however, Descartes who put the philosophy of dualism onto a firm philosophical foundation. (Roux 1972:26)

physical universe which he described as being mechanistic and deterministic. (Gay 1966:12 and Goswami 1979:408). The split between mind and matter then became the 'official doctrine' (Ryle 1969:11).

Cartesian Dualism complemented by the Newtonian world-view was instrumental in helping humankind untap and harness massive reserves of human and material potential. Descartes' model has, however, subsequently been criticised. For example, at a social level, Cartesian dualism has seemed to have encouraged humans to be more egotistical, self protective and, therefore, alienated. At a metaphysical level, Cartesian Dualism has created a new set of problems, namely: what is the substance called mind? Where is mind situated? How does mind interact with body? (Harvey 1967:228; Roux 1972:45-52). These social and metaphysical issues will be discussed in 1.3.3.

The Cartesian epistemology has been selected as one framework relevant to the present study because the very structure of Western thought has been infused by aspects of Cartesian dualism (2.3.1), and because almost all research into gifted education has been informed by Cartesian assumptions.

1.3.2 The Socialist epistemology

The Cartesian world-view which influenced the work of Sir Isaac Newton and the thinkers of the Enlightenment grew numerous branch-epistemologies: Individualism, Industrialism, Capitalism, Imperialism, Liberalism (2.3.1). Socialism, can also be regarded as a branch-epistemology of the Cartesian world-view because Socialism is essentially the combined product of the Eighteenth Century Enlightenment, Liberal and Egalitarian principles of the French Revolution, and the impact of industrialism (Bullock 1988:791). Socialism (and the following applies in particular to the Marxist form of Socialism), is also a materialistic version of Universal Determinism or Idealism associated with the philosophies of Georg Hegel (1770-1831), Benedict Spinoza (1632-77) and Zeno of Citium (c.310 B.C.) (Bullard 1990:403., Durant

1961:131 - 151, 221 - 226., Harvey 1967: 137, 715, 784., Olson 1962:140) However, because Marxism advocated a completely new way of viewing and living out social reality, it was felt that for the purpose of the present study, Socialism warranted a separate epistemological category of its own.

Marxists argue that the taken-for-granted social world is not a given entity but is, instead, socially constructed (2.3.3). To counter the hegemonic individualistic, capitalistic, elitist world-view Marxists postulated, an utopian, collectivist, socialist, egalitarian epistemological world-view which would place the means of economic production and distribution in the hands of the community.

Socialism, and especially its more militant version has empowered left-wing academics, educationists, politicians, the proletariat thus helping to bring about a more equitable distribution of wealth. The worrying aspect about the Marxist epistemology is its confrontational agenda which appears to breed authoritarianism (2.3.2).

The Socialist epistemology has been included as one of the three focuses in this study because Marxism, in particular, is a medium through which the radical left has challenged the socio-political (including educational) status quo in South Africa.

1.3.3 Deep Ecology

The Cartesian epistemology assumes duality in nature. In practice, the Socialist epistemology is also dualistic, despite the fact that Socialists assume that humans share a commonality and also postulate a Grand Synthesis in an Utopian future. Both the Cartesian and Socialist epistemologies, for all intent and purposes, therefore, ascribe to a common paradigm which is materialistic, dualistic, anthropocentric. Deep Ecology, in contrast, assumes a unified universe. This new way of viewing reality can be seen to represent a paradigm shift.

Justification for postulating a unified, in preference to a dualistic, universe will be reviewed in this section and in 2.3.3.

As a start it will be necessary to understand clearly why a dualistic conception of wo/man is essentially flawed. Gilbert Ryle, for example, criticized Cartesian Dualism on a number of points. His most famous observation was that Descartes' description of the body containing a separate, distinguishable mind was 'the dogma of the Ghost in the Machine' (Ryle 1969:15-16). Ryle also maintained that describing mind and body as two separate categories created more problems than it solved. Marcel, Sartre and Merleau-Ponty each in his own way pointed out that people do not perceive their bodies as objects; do not use their bodies like cameras between themselves and the world. Instead, everyone is the centre of his/er perceptual world which is experienced not just physically but historically, idealistically, emotionally, and through other people's eyes(reported in Roux 1972:56-58):

> ...The unity of body is not an arbitrary joining of two external end-points one of which is Object and the other Subject, but it is something that is actualized at every moment in the movement of the entire existence of man. (Roux 1972:59)

This unity of body has been taken further by those who subscribe to the Deep Ecology epistemology when they argue not only the unity of body but interdependence throughout nature. In their view reality can not be broken into discrete constituent entities (quarks, atoms, minds, bodies, humans, institutions, nations, planets, stars, galaxies) but, instead, forms an unbroken wholeness: even the perceiver being part of that which is perceived. Neither matter, nor mind, is contained in discrete repositories called genes, organisms, bodies but, instead, participates in a *process* of gathering complexity: 'gene-in-organism, organism-in-environment, ecosystem etc.' (Bateson 1972:491) which itself is the operation of mind. For as Gregory

Bateson pointed out: mind is not separate from matter but is immanent in all of nature: biological, social, cultural:

> The cybernetic epistemology which I...[offer] you would suggest a new approach. The individual mind is immanent but not only in the body. It is immanent also in pathways and messages outside the body; and there is a larger Mind of which the individual mind is only a subsystem. That larger Mind is comparable to God and is perhaps what some people mean by 'God', but it is still immanent in the total interconnected social system and planetary ecology (Bateson 1972:467)

Capra, explained that, according to Bateson's theories, mind was an inevitable consequence of a certain complexity which began long before organisms developed a brain and a higher nervous system. Therefore, these mental characteristics were manifestations not only in individual organisms but also in social systems and ecosystems.

> In the stratified order of nature, individual human minds are embedded in the larger minds of social and ecological systems - the mind of Giaia[5] - which in turn must participate in some kind of universal or cosmic mind' (Capra 1982:317).

In terms of the ecological paradigm, therefore,

> God is not the creator, but the mind of the universe' (Jantsch, quoted in Capra 1982:317).

It was mentioned (1.3.1) that Socialism and, in particular Marxism was a material version of Universal Determinism or Idealism. Deep Ecology, which has its roots in the Stoicism of Zeno who preached that the highest Good was to obey the will of God; the Pantheism of Spinoza, who stated that: 'God is the immanent, and not the extraneous cause of all things.' (quoted

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[5] 'The Giaia Hypothesis, as proposed by the British scientist James Lovelock, suggests that the Earth's atmosphere and oceans are maintained as highly sophisticated buffering devices by the totality of life on the planet. The whole Earth, in other words, may function as a single self-regulating organism' (Brand 1981:back cover)

in Durant 1961:132); and the dialectic synthetism of Hegel who saw wo/man as part of the Absolute, transcending individual limitations and purposes (ibid:224., Harvey 1967:377) can also be seen as operating within a deterministic framework. It might, however, be a mistake to assume that the universe is, teleologically speaking, a closed system (2.3.3).

The strength of Deep Ecology is that it offers the researcher a new unified way of looking at his topic which allows him to avoid many of the pitfalls created by dualistic assumptions about nature (1.3.1 and 1.3.2). Two further reasons for including the Deep Ecology perspective are, firstly, that it seems to be 'more correct' than the other two epistemologies (2.3.3) and, secondly, the Four Area Enrichment guide to schools appears to be almost exclusively informed by Deep Ecology (Chapter 3).

1.4 An outline of the research methodologies closely related to the Cartesian, Socialist and Deep Ecology methodologies

The methodologies often associated with the Cartesian, Socialist and Deep Ecology epistemologies are to be reviewed in the following three sections.

1.4.1 Cartesian methodology

Descartes' assumption that mind was separate from an objective, measurable, material body led humans to believe that through the exercise of pure reason, the mechanistic laws of the material and social universe could be discovered (1.3.1 and 2.3.1). The empirical research methodology of data gathering and hypothesis testing is based upon this assumption.

The empirical approach that was adopted in this study has been aimed at gathering as much data on how principals and co-ordinators viewed aspects of the Four Area Enrichment model and the extent to which schools were integrating the model into their school's programme. Data for the study was obtained from

interviews with principals and co-ordinators, questionnaires completed during in-service training programmes conducted at the Cape Town Teachers' Centre, staff development programmes, and from annual feedback returns submitted by schools.

1.4.2 Socialist methodology

Socialist research theory is more closely related to Marxism and, in particular, the Frankfurt School of Critical theory (Popkewitz 1984:16). The assumption upon which empirical research is based is that there are universal laws which can be discovered through empirical hypothesis testing. Critical research works on a different set of assumptions, namely that reality and, in particular, institutionalized reality is socially constructed. Critical researchers assume that the hegemonic institutional definitions of reality, because they are based upon individualistic, capitalistic norms and values have created what they term, 'false consciousness' which legitimizes and perpetuates inequality. Critical researchers see their role as challenging false consciousness in all its institutional and social manifestations in order to free minds from capitalist hegemony.

Critical research is used as a tool to penetrate the layers of ideology informing a particular theory, model, dispensation etc, in order to determine its 'political correctness' (Henry 1991:60), in other words, the extent to which it promotes the Socialist agenda (Dewar 1986; Gilbert 1984; Popkewitz 1984):

> The language and intent of such theory is political...Making problematic the nature of words, customs and tradition in our everyday life is to increase the possibility of human agency in providing for a social transformation that creates new structures and emancipatory conditions. (Popkewitz 1984:16-17)

The philosophical statement and goal of the Four Area Enrichment model; the concept, giftedness; Areas One, Two and Three of the model will be critically evaluated to gauge their acceptability

to the broader educational community and, where warranted, refinements will be suggested.

1.4.3 The Deep Ecology methodology

The predicament facing social researchers is that the very conclusions reached by means of empirical research procedures might often be invalidated if critically evaluated (1.3).

A way of getting round the problem is for researchers to broaden their perspectives in order to view the empirical-analytic and critical research procedures not as *either...or* options, but as *both...and* perspectives. Another way round the problem is for researchers to deepen their enquiry in order to avoid viewing data, events, theories, institutions etc as separate and independent but, rather, as manifestations of an underlying metaphysical reality which is essentially whole[6].

Proponents of Deep Ecology do not assume (as do those of the critical school) that life is primarily confrontational. They believe, instead, that life requires, as Fritz Schumacher (quoted in Capra 1988:218) explained in another context the 'living reconciliation of opposites'. Advocators of Deep Ecology differ from advocators of Holism in that systems, organizations, institutions are seen not as discreet, self contained, holistic entities but, instead, embedded in yet larger systems.

Possibly the best way in which to describe a methodological orientation closely related to Deep Ecology is through an understanding of 'bootstrapping', as developed by the physicist G. Chew (Capra 1988: 154). According to the bootstrapping approach the researcher patiently, gently and honestly attempts to establish where the interconnections that constitute the whole are to be found. As more connections are made the pattern of the network slowly emerges. Gradually more and more concepts are

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[6] It should however be pointed out that whereas empirical-analytic and critical research each has clearly articulated methodologies, so-called ecological research, in contrast, has a recent history, is more diverse and, accordingly, less clearly categorized.

able to be explained through self-consistency and hence are 'bootstrapped':

> ...I have found to do some useful work is to describe the system we are looking at very carefully, together with all its nesting systems. You have to specify at the outset what exactly you are looking at.... You can never integrate all the different viewpoints and interests. All you can do is be honest at the outset, and it's the honesty that is so painful. (Hazel Henderson, quoted in Capra 1988:270)

There have been two ways in which the Deep Ecology methodology have been applied to the present study. Firstly, the researcher has attempted to integrate the empirical and critical methodologies into the study in order to widen the research-focus[7]. Secondly, because critical analysis will reveal that the ideological bias of the guide to the Four Area Enrichment model, reflects the Deep Ecology epistemology (3.3) and because Deep Ecology is arguably 'more correct' than either the Cartesian and Socialist epistemologies (1.3.3 and 2.3.3), an effort will be made to establish which aspects of the goal, philosophical statement and the model itself fail to reflect Deep Ecology and, in order to avoid epistemological schizophrenia, how these discrepancies might be resolved.

Before embarking upon the study it is necessary to contextualize the present enquiry by offering a brief overview of the gifted education movement in the West from Galton, its adaptation in the Cape Education Department until the development of the Four Area Enrichment model in 1986.

1.5 Roots of the Gifted Education Movement in the West

At the turn of the 19th Century, Sir Francis Galton (1822-1911) deduced from a small elite sample drawn from aristocratic

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[7] Mixing research techniques is known in Sociology as triangulation. Triangulation occurs when '...differing research techniques in the same study are used to illuminate differing aspects of the problem' (Cuff 1984:218)

families that giftedness was due to natural selection and heredity. (Davis 1985:3)

The next significant development occurred when the French government, wishing to identify children who might possibly benefit from regular schooling, approached A. Binet and T. Simon to develop tests to measure children's ability. The concept 'mental age' grew from these tests.

An American version of the Binet-Simon tests called the Stanford-Binet Intelligence Scale was developed by Lewis Terman in 1916. Terman also embarked upon a longitudinal study of 800 boys and 700 girls scoring above 140 on the test, to prove a correlation existed between intelligence scores and subsequent success in life.

In 1957 the Russians launched the Sputnik satellite. This event was considered a glaring and shocking technological defeat for the United States and precipitated a 'total talent mobilization' (Tannenbaum, reported by Davis 1985:7). Gifted education was suddenly elevated to national priority, in the United States. The identification of gifted children remained, however, a major problem and invariably educators found themselves relying on I.Q scores to help determine who should be participating in gifted programmes.

In South Africa information concerning gifted education was first sent to schools of the Cape Education Department in 1976 by the then Director of Education, Dr P.S. Meyer.

In 1980, Dr J. Neethling was appointed first Education Planner for Gifted Child Education (Ungerer 1989:4). Neethling's association with Paul Torrance of Atlanta University in Georgia; his own post-doctoral Masters thesis into giftedness under Torrance in 1984; the wealth of American-based literature on gifted education that was made available to teachers in the departmental Resources Centre meant that American policies, methods, programmes influenced the direction of gifted education in the Cape Education Department for up to five years.

One clear illustration of this fact was that the United States Office of Education definition for gifted and talented children was adopted in the Cape Education Department:

> Gifted and Talented Children are those identified by professional, qualified persons - who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programmes and/or services beyond those normally provided by regular school programmes in order to realize their contribution to self and society. (Neethling 1981:142)

Neethling recommended that empirical instruments such as academic achievement together with intelligence and creativity tests be used to identify pupils who were 'generally gifted', 'specifically gifted' and 'talented'. At the Junior Primary phase (i.e. Sub A - Std 1), personality, IQ scores and Creativity tests were recommended; while a combination of the IQ score and academic achievement was proposed for pupils from standards one to ten. Teachers were also encouraged to apply the Guilford Structure of Intellect model[8] and the Torrance model of Creativity[9]; make use of teacher nomination and mini panels consisting of the principal, selected teachers and, where necessary, the school psychologist (ibid 142-4).

Neethling proposed a gifted education programme that would promote thinking and creativity skills; an aesthetic disposition ('estetiese sin' ibid, 145); independent study; a positive attitude regarding learning; and leadership potential.

It was recommended that this be achieved through a combination of pull-out programmes[10]; magnet classes and magnet

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[8] Guilford's model attempted to show intellect in terms of three variables: mental operations, content and products.

[9] Torrance (1979) believed that creativity could be broken into five major skills: originality, fluency, flexibility, abstraction and resistance to premature closure. These, he argued, were complemented by thirteen creative strengths.

[10] Intra-school withdrawal programmes for pupils identified as gifted.

schools[11]; pupil subject or standard acceleration; the appointment of regional co-ordinators and itinerant teachers; publications such as Wakening Word and Stimulus; mathematics and science centres; private initiatives such as those offered by the Western Cape Association for Gifted Children.

The departmental gifted programme was to be conducted in two phases. Phase one was to see the creation of an umbrella co-ordinating committee (comprising of principals and school co-ordinators of selected project schools) that had as its aim experimentation with subject content, examinations and evaluation and the generation of enrichment material. Phase two would see the implementation of these programmes in all primary and high schools (RGN 1986:367).

In-service teacher training, student training at colleges, specialized courses were to receive priority.

By October 1980 the following committees were functioning: a departmental co-ordinating committee comprising the Deputy Director of Planning, and the Planner for Gifted Education; committees commissioned to draw up enrichment material for pupils from pre-primary to standard ten; curriculum committees to look into teacher training. By then a number of schools were also experimenting with various approaches.

A marketing drive or 'bewuswording' (Neethling 1981:139) proved so successful that within a relatively short period a wide selection of enrichment material had already been produced; colleges had drawn up syllabi; Wakening Word and Stimulus were being regularly published; a comprehensive in- service training programme had been initiated; short science courses had been conducted by Teachers' Centres and colleges; and the Problem Solving Bowl[12] was being conducted on an annual basis (Neethling 1981). In 1982 and 1983 all principals were introduced to gifted

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[11] Access to magnet classes was determined by ability rather than by standard classification. Magnet schools specialize in catering for pupils with specific talents.

[12] A competition developed by Paul Torrance to promote creative problem solving and futuristic thinking.

education through a series of in-service training courses (Ungerer 1989:5).

Dewar (1986:116) paid tribute to the role played by Neethling when she summarized that the achievements in gifted education since 1980:

> ...must undoubtedly be due to a great extent to the personal abilities of the incumbent of the post of Planner for Gifted Education, J.S. Neethling, whose energetic and creative American-influenced management style and leadership has done much to overcome bureaucratic inertia.

1.6 The affect of egalitarianism on the Gifted Education programme until 1986.

Despite progress in the field of gifted education there were, nevertheless, educationists who questioned gifted education or aspects of the gifted education programme.

Certain researchers, for example, were critical of the various forms that gifted education took: the belief that academic achievement is a valid indicator of excellence; the reliability and validity of intelligence testing; streaming, elite schools for the privileged, magnet classes, pull-out programmes for the intellectually advanced etc. (Esland 1977; Simon 1977; McClellan 1976; Henderson, 1976; Dewar 1986)

The increasing influence of Liberal ideas such as fair play equality of opportunity, equal rights (Ashley 1989:35); as also the osmotic affect of the 1984-6 crisis in black education and the country as a whole seem to have affected the way in which gifted education was at that time being viewed within the Cape Education Department. A returned annual gifted education questionnaire (Cape Town Teachers' Training College 1984), for example, threw into sharp relief the current thinking when, inter alia, it was noted that as most lecturers had expressed serious reservations about

> ...the concept of elitist education as a form of social engineering...it was the majority opinion that this College should not reinforce this false labelling

> process which was seen as an educational fad which had already passed from favour in the USA and UK.' Flowing from this the committee resolved that, 'The methods currently employed in the education of the gifted need to be broadened to include all children as quickly as possible and that the gifted education module should be transferred into a module entitled "Towards Giftedness" for mixed ability groups with a clear egalitarian emphasis.

Gifted education co-ordinators were themselves at that time involved in soul-searching. A panel discussion comprising high school co-ordinators: Mss J. Bottaro, J. Peiress and Mr. P. Fenton and chaired by Mr A Cliff (Ungerer 1985a), for example, highlighted two major problem areas, one related to the practical implementation of the gifted education programme, the other, related to the issue of elitism.

Some of these issues were addressed during the departmental gifted education in-service programme of 1985 (Faasen et al 1984; Ungerer 1985b), through, inter alia, a call, firstly, for creative problem solving skills to be offered not only to pull-out groups of 'gifted' pupils but to all pupils; secondly, that all teachers be urged to integrate these skills into their regular classroom programme.

In 1986 seven regional co-ordinators were seconded to each of the Cape Education Department Teachers' Centres for two years. Their permanent appointments were ratified in 1988.

At that time four mini trends relating to gifted education were identified (Mentz 1986). Two trends reflected the prevailing mood: firstly, there was a conscious move away from the labelling of children as 'gifted'; secondly, there was an increasing number of schools seeking ways to widen the gifted education programme in order to reach as many pupils as possible.

This move towards a more inclusive, fluid interpretation of gifted education was refined and became formalized during the next phase, with the development of the Four Area Enrichment model.

1.7 Creation of the Four Area Enrichment Model in 1966

The first planning session for an in-service programme exclusively for Cape Town schools was convened by the provincial chairman of the Laboratory Schools' Committee, Dr J. Gibbon, on 3 March 1986. At this meeting needs and aims were discussed (Barris 1986; Van den Berg 1986). Shortly thereafter the Four Area Enrichment approach was conceived and written into a guide for schools (Mentz 1986b) (refer Addendum A). On 14 April 1986, the model was discussed with the conveners of the senior primary and high school in-service training committee, Ms A. Lowenherz and Mr K. Barris. At this meeting it was agreed that the in-service programme which was being planned would be built around the Four Area Enrichment model. Mrs Lowenherz proposed and designed an improved diagrammatical representation of the Four Area Enrichment model. This was incorporated into the guide (Addendum A:5). Thereafter, the guide was translated into Afrikaans by Mr E. Ungerer and introduced into the Parow region.

The Four Area Enrichment model was based upon a wide, flexible interpretation of giftedness which was not dependent upon traditional empirical instruments such as I.Q. tests. According to the Four Area Enrichment definition of giftedness:

- *all* children were to be regarded as gifted;
- giftedness was to be viewed as a *potential* that could be nurtured;
- giftedness was to be seen as a *relative* concept;
- it was felt that giftedness normally manifested itself in a *specific* area;
- finally, it was stated that educators should avoid speaking of a gifted child, but focus rather on what Renzulli (1981) termed, '*gifted behaviour*'.

This broad view of giftedness formed the foundation upon which the Four Area Enrichment approach was based:

- *Area One Enrichment*:
  Because all children were seen, in some or other way, to

be gifted and because giftedness was regarded as a potential that could be nurtured, basic skills such as creativity, problem solving, research, entrepreneurship, futuristic and lifeskills were to be taught to all standard three or six pupils.

- *Area Two Enrichment:*
  Because giftedness was believed to manifest itself in specific areas, it was felt that provision should be made for enrichment within the classroom for pupils with specific academic-related gifts;

- *Area Three Enrichment:*
  Because it was believed that all pupils were gifted, and because giftedness was seen as a potential that could be nurtured it was argued that all pupils, but especially those who had earned admission through the successful completion of a pre-task activity, should have access to intra- and inter-school extra-curricular enrichment programmes.

- *Area Four Enrichment:*
  Because giftedness was a relative concept it was argued that there were certain pupils who required more than was offered by Area One, Two and Three Enrichment. Such pupils should have access to an Area Four programme.

After Dr Neethling's departure from the Cape Education Department, Gifted Child Education was incorporated into Curriculum Services under Dr C. Meintjes in 1986.

At a meeting of the regional co-ordinators in Oudtshoorn Dr Meintjes commissioned an official departmental guide incorporating the model (Gifted Education Co-ordinators 1986). At this meeting the provincial goal for the gifted education programme, as also eight aims were compiled. The goal (but not the aims) was incorporated into the Cape Town guide (Addendum A:

2). The departmental guide based upon the Four Area model was compiled under the convenership of the regional co-ordinator for Worcester, Mr D. Roux in 1988. Since then the Four Area approach has officially been implemented in the remaining five regions of the Cape Province: East London, Kimberley, Port Elizabeth, Oudtshoorn, Worcester. An article describing the model and its reception by schools was subsequently published (Mentz 1988).

1.8 The purpose and scope of this study

Often researchers justify gifted education, assuming a Cartesian framework, or condemn gifted education assuming the political correctness of the Socialist framework. The purpose of this study is to widen the discussion by viewing the Four Area Curriculum Extension and Enrichment model also through a third epistemological framework known as Deep Ecology. The advantage of Deep Ecology is its inclusive, metaphysical nature which allows the researcher to assess both the strengths and weaknesses of the model from a number of perspectives.

It is for these reasons that empirical data obtained from questionnaires, will be evaluated to see whether the Four Area Enrichment model has been favourably received by a significant number of principals and co-ordinators, and whether aspects of the programme have been incorporated into their schools' curricular and/or extra-curricular programmes. Secondly, an attempt will be made to establish whether the Four Area Enrichment model is able to withstand critical analysis and, where there are shortcomings, how the model might be adapted to serve a wider - possibly radicalized - educational community. Thirdly, an attempt will be made to explore whether the concept giftedness and, in particular, genius has been adequately formulated in the literature or whether intelligence might not be better comprehended once its metaphysical, immanent nature is understood, acknowledged, and more consciously incorporated into all aspects of a gifted education programme.

The three epistemological worlds are explored in greater detail in chapter two in order that the merits and demerits of each symbolic world might be understood in terms of the existential human condition. This will facilitate later discussion when aspects of the Four Area Enrichment model need to be reformulated to serve particular epistemic communities.

It will be shown in chapter three that the Four Area Enrichment guide to schools has a clearly articulated Deep Ecology epistemology; that the theoretical assumptions underlying the Deep Ecology epistemology, as it is articulated in the guide to schools, are sound; and that the Deep Ecology epistemology should consciously be reflected in the Four Area Curriculum Extension and Enrichment model as a whole. A Critical analysis of the philosophical statement and goal, as articulated in the guide is shown, in chapter three, to reflect a Cartesian, Positivistic Liberal bias. Improvements to the statement and goal, in order to bring them into line with Deep Ecology and broader socio-political realities are suggested.

A critique of research into giftedness in chapter four, shows that the traditional methods of viewing giftedness are inadequate. An analysis of the Four Area definition of giftedness is, in contrast, shown to have both empirical and theoretical legitimacy, and, where appropriate, to be in tune with Deep Ecology.

An empirical analysis of data obtained from questionnaires reveals, in chapters five to seven, that the Four Area model, generally speaking, has been positively received and implemented in schools. Certain refinements to Areas One, Two and Three of the Four Area model are suggested after a critical analysis. It is hoped that these adaptations should make the model more acceptable to the wider educational community.

In chapter eight the implications of Deep Ecology on the nature of genius are explored and a case is made for viewing giftedness, not as a personal, nor even a social construct, but metaphysically.

In the final chapter all the threads are drawn together and suggestions for further research outlined.

CHAPTER TWO

THE CARTESIAN, SOCIALIST AND DEEP ECOLOGY SYMBOLIC WORLDS

2.1 Introduction

A brief, theoretical introduction to world-making, with particular reference to the Cartesian, Socialist and Deep Ecology epistemologies was given in 1.3. In this chapter the earlier discussion is concretized. This is necessary because research into the Four Area Enrichment model requires background understanding of the symbolic worlds associated with each of these three epistemologies.

It is shown that the Cartesian world-view has enjoyed hegemonic status largely because its dualistic assumptions about reality have never, until recently, seriously been challenged. Despite the successes of the Cartesian world-view, some of the negative influences of Cartesian dualism are discussed (2.3.1). The challenge posed to the Capitalist epistemology by Socialistic theories, and Marxism's influence on socio-political developments within South Africa are discussed and analyzed. Serious shortcomings in the Marxist epistemological world-view are also discussed (2.3.2). The theoretical and empirical justifications for Deep Ecology are explored, discussed and shown to be a nearer approximation of an assumed aboriginal reality, than either the Cartesian or Socialist epistemologies (2.3.3). Each of the three epistemologies is evaluated in the light of the existential human condition (2.4).

2.2 Orientation

Any theory, idea, model is born from, and operates within particular contexts. The Four Area Curriculum Extension and Enrichment model is no exception. In the previous chapter

reasons were given as to why the Cartesian, Socialist and Deep Ecology epistemologies have been selected as focuses for the present research. The symbolic worlds associated with each of these three epistemologies are to be discussed in the present chapter. This discussion should not be seen as an extravagance nor a digression as it will serve the following purposes:

- it will place the Cartesian, Socialist and Deep Ecology epistemologies in their historical, social and theoretical contexts;

- it will provide the opportunity of expanding on the strengths and weaknesses of the Cartesian and Socialist worlds, and motivating why the symbolic world hypothesized by Deep Ecology appears to offer a 'more correct' epistemological explanation of reality;

- it will pave the way for the discussion in chapter three where it will be shown that the guide to the Four Area model is informed by the Deep Ecology epistemology and why the philosophical statement and goal need to be reformulated to bring them in line with Deep Ecology.

2.3 Exploring three symbolic worlds

Explanations about how the natural world and societies operate (or should operate) affect the way in which individuals relate to one another. Over time, explanations which prove most durable develop into symbolic worlds comprising concepts, systems, rules, customs, jargon, artefacts, works of art, styles etc.

The Cartesian epistemology, for example, makes assumptions about the way the world 'is'. These assumptions have legitimized particular ways of seeing the world which have supported concepts such as individualism, progress;

systems such as capitalism; institutions such as a Bill of Rights. On the other hand, the symbolic world projected by the Socialist epistemology discourages, 'nihilates', or 'cultures out' tendencies or concepts such as individualism, competition and, in their place, encourages, 'legitimizes' or 'cultures in' concepts such as collectivism and egalitarianism. The symbolic world hypothesized by Deep Ecology has a strong metaphysical foundation and would seek to bring about a culture out of which cooperation, sense of sharing, reverence for life would naturally grow.

Each of these symbolic worlds will be explored in greater detail in the following sections.

2.3.1 Cartesian symbolic world

If mind were seen to be split from, and assumed to be superior to matter, it would be natural for the possessors of mind (i.e. humans) to begin seeing themselves as separate from and superior to the physical world. This suggests why Cartesian Dualism led humans to believe they had the right to determine not only their own fates but the fate of nature.

The belief in a mechanistic universe under the control of reason inspired the Eighteenth Century Age of Reason, or Enlightenment which, in turn, gave birth to much of what is taken-for-granted today[13] including Psychology, Industrialism, Capitalism, Nationalism, Imperialism, Liberalism. A short overview follows.

David Hume can be regarded as the father of psychology. In his, A Treatise of Human Nature, he explored whether empirical methods could be applied to human beings. Attempting to discover the laws of human nature was an

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[13] For the purposes of the present study, Psychology, Industrialism, Capitalism, Nationalism, Imperialism, Liberalism have been regarded as closely related sub-epistemologies of the Cartesian symbolic world (1.3.2).

exciting and significant project and, as Gay showed (1966:101), in tune with the Enlightenment:

> The times were hospitable to such a project. As educated men came more and more to regard man as a superior animal or a remarkable machine, they thought it only logical to explain his behaviour in scientific terms.

Modern Capitalism, riding the back of Industrialism, can also be retraced to the Age of Enlightenment and, specifically, Adam Smith's[14], An Inquiry into the Nature and Causes of the Wealth of Nations (1776), in which he argued that nations would grow wealthy providing they encouraged individualism. Smith claimed:

> ...that the maximum of wealth can be attained only through the unfettered action of individuals, for nature has arranged that each man in seeking his own welfare promotes the welfare of the nation. (Ergang 1954:575)

The French revolution gave birth to a spirit of Nationalism. Nationalism, fuelled by Capitalism (ibid 256-258) grew into Nineteenth Century Imperialism. Nationalism and Imperialism are also therefore products of the Enlightenment.

Another feature of the Age was the flowering of Liberalism (Ashley 1989:29), in the form of the 'Declaration of the Rights of Man and of the Citizen', and the 'American Declaration of Independence' (Gay 1966:168). However, in order to understand the spirit of Liberalism it is necessary to look beyond the rational, analytic individualism of the Age of Reason, to the Romantic Era during which a:

> ...health-restoring revival of the instinctual life was preached in contradistinction to eighteenth-century restraints that sought to sublimate the instincts in the united names of reason and society. (Bloom and Trilling 1973:4)

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[14] 'Adam Smith's position in the history of economic thought has been compared with that of Charles Darwin in the history of science.' (Ergang 1966:576)

Individual liberty, the central theme of Liberalism, must therefore not be seen as an individualism, 'devoid of enthusiasm and romance' (Ergang 1954:578) but quite the opposite. For Liberalism implies:

> ...an optimistic view of human nature, a value placed on the development of individual potential and freedom, and a recognition of the inter-dependence of individual and society.(Chesler, reported in Ashley 1989:31)

Liberalism, focuses on the uniqueness of each individual as s/he interacts within a group (Popkewitz 1984). Finally, Liberalism, in contrast to Marxism (2.2.2), has an incremental view of social change in society believing that change:

> ... should be brought about piecemeal by the application of intelligence and reason rather than violence. (Ashley 1989:40)

It should be evident from the above overview that much of modern taken-for-granted reality is essentially Cartesian. Because of this fact many current social problems can be traced back to the Cartesian epistemology which, by creating a mind-set that placed reason or thought apart from and in control of the material world[15], led humans to believe they were entitled to improve, harness, conquer the material world. This hubris, born of Cartesian Dualism, came in many versions: Individualism (viewing self as different from and independent[16] of both the natural world and other human

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[15] Descartes was never able to explain the interaction of spirit and matter. (Harvey 1967:228)

[16] The word, 'Independent' (from the Latin, *in* - not, *de* - from, *pendere* - to hang) meaning '...not dependent or relying on others' (Chambers 20th Century Dictionary) has been used to indicate the Cartesian sense of a separate, self-enclosed ego; while the word, 'autonomous' (from the Greek *autos* - self, and *nomos* - law) has been used in this study to represent the individual grounded in Being (i.e. the *law*) as expressed through particularity. The distinction between these two words will be developed in 2.3.3 and 2.4 when the existential human condition will be discussed.

beings); Industrialism (assigning to humans the right to substitute machines for labour and to exploit the earth's resources for progress); Capitalism (legitimizing the use of machines and/or people for personal gain); Imperialism (giving humans the right to declare war or annex a foreign land in the name of patriotism); Liberalism (legitimizing the Cartesian world-view by emphasising the independence of the human psyche).

In summary, the Cartesian world-view is based upon a number of interrelated assumptions which give it form. Firstly, it assumes a dualistic view of the world with the human psyche/soul/self/spirit separate from the material world. Secondly, it assumes that physical laws can be applied to the social world. Thirdly, it assumes that humans are bestowed with a God-like faculty which empowers them to discover the laws of the universe and to use the knowledge for their own ends.

The Cartesian epistemological symbolic world proved very powerful and has largely remained unchallenged for over three centuries.

2.3.2 Socialist symbolic world

Socialists closely analyzed the social world created by the Cartesian epistemology and found exploitation, self-interest, self-deception, institutional violence.

Bernard Shaw, himself a Fabian[17], summed up the Cartesian mind-set in the following observation:

> When an Englishman wants a thing, he never tells himself that he wants it. He waits patiently until there comes to his mind, no one knows how, a burning conviction that it is his moral and religious duty to conquer those who have the thing he wants...He is never at a loss for an effective moral attitude. As a great champion of freedom and national

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[17] Society founded in 1884 consisting of Socialists who advocated a policy of harassment as opposed to revolutionary action. (Harvey 1967:288)

> independence he conquers and annexes half the world, and calls it Colonisation. (quoted in Ergang 1954:256)

By challenging, and arguing that the individualistic structures, values, norms, institutions of society should be replaced by egalitarian structures, values, norms and institutions, Socialists became involved in what Goodman called 'world-making' (1.3) or 'dynamic relativism' (Goodman 1984:19):

> We start, on any occasion, with some old version or world that we have on hand and that we are stuck with until we have the determination and skill to remake it into a new one...Worldmaking begins with one version and ends with another. (Goodman 1978:97)

A brief introduction to Socialism, its history, the alternative world-view hypothesized by Socialists, and the methods they used to achieve their aims now ensues.

The roots of Socialism can be traced to The French Revolution, the writings of Comnte Claude Henri de Saint-Simon (1790-1825), Charles Fourier (1790-1837); and the pioneering work carried out by Robert Owen (1771-1858)[18] .

Although 'Socialism is a chameleonlike creed' (Ramsay Muir, quoted in Ergang 1954:92), there are three things which Socialists share in common: firstly, their primary concern is economic; secondly, Socialists have consistently condemned Capitalism; thirdly, Socialists have maintained that Capitalism must be replaced by a new economic order comprising the idea of collective ownership. (Ergang 1954:92)

After the Revolution of 1848, Socialism re-emerged in the form of Marxism. Marxism differed from earlier Socialism in a number of ways. Whereas former versions of Socialism had been peaceful and hopeful, Marxism was militant and aggressive.

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[18] Although it is significant to note that elements of socialism can *inter alia* be seen in the philosophy of Plato and in certain earlier Christian church communities. (Ergang 1954:91-93)

Whereas Socialists had preached voluntary co-association, Marxists preached class war. Whereas Socialists had dreamt up vast impractical schemes; Marxist entered politics in order to contest and control the political forces (ibid:100)

> The main object upon which all his [i.e. Marx's] thinking converged was the liberation of the working class from the capitalist system...His theoretical system was, above all, a working philosophy, a plan of action, a weapon for the fight against the existing order. It is only in this light that his ideas can be understood (ibid: 104)

Because the goals of the major South African liberation organizations: the African National Congress, Pan African Congress, United Democratic Front and National Forum have been influenced by Marxist ideas, Marxism has had a major impact upon the socio-political and educational landscape in South Africa (Ashley 1989:45).

The Youth Rebellion in June 16 1976 and its aftermath which left 400 dead; the rebellion of the Comrades in 1984 which during the following two years claimed 2 000 lives (Hawthorne 1991:37) had, according to Ashley (ibid:43), a strong Socialist character.

Ken Hartshorne (quoted in Ashley 1989:46-7) explained these changes in black thinking on education in South Africa since 1976:

> In attempting to understand the crisis of 1984-86 and the messages couched in terms such as people's education, community education, liberation education, worker education, post-apartheid education, it is essential to realize - and this is the new emphasis of 1986 compared with 1976 - that most of the new messages, particularly in the voices of younger people, were rooted in perceptions in *socialist principles*. Scepticism as to the benefits of capitalism, evidence of exploitation by those holding economic power, disbelief in the inevitability of the rewards of economic growth 'filtering down' to those economically as well as politically disenfranchised, have been well documented in various free enterprise surveys in recent years...Economic as well as political reconstruction is now on the agenda, and any

> considerations of the future of education has to take this into serious account.

Marxists argue that Capitalists differ from the proletariat not only in terms of wealth but also in terms of consciousness. Marxists believe that when the proletariat accepts institutional definitions of reality which legitimize their own apparent inferiority they are participating in, and perpetuating, false consciousness (Ashley 1989:44-5).

Marxists believe that it is imperative for 'the people' actively to resist such cultural and ideological domination by 'decolonize(ing) the mind' (Es'kia Mphahlele, quoted in Ashley 1989:52).

Marxists use many methods to counter Capitalist hegemony. Three such methods: critical analysis, consciousness raising and revolutionary praxis are briefly outlined.

Critical analysis is one method used to call into question the philosophies, structures, functions of existing institutions, systems etc. by highlighting inherent contradictions; dubious, false, or damaging assumptions (1.4.2).

A second way in which Marxists attempt to resist Capitalist hegemony is through consciousness-raising or 'conciêntizaçåo'.

> Conscientization makes me realize that my brothers who do not eat or laugh, who do not sing, do not love, who live under oppression, suffer and are hated, and who are less and less every day, are the victims of structures that create that extreme situation...My choice is either to do nothing and suffer guilt; or, conversely,...commit myself to the historic process with all its risks. (Paulo Freire 1976:226)

Consciousness-raising encourages an utopian brotherhood of ''We" not "I"', by rejecting what is termed, 'education for conformity or domestication' in favour of, 'education for freedom'. In terms of conciêntizaçåo people assume

responsibility as agents, makers and remakers of the world and of history through:

> ...the dialectic process of denouncing and announcing - denouncing the oppressing structures and announcing the humanizing structures. (ibid 225)

The third weapon used by Marxists to destroy Capitalist hegemony is revolutionary praxis:

> ...revolutionary praxis, [is] the fusion of thought and action, of theory and practice, of philosophy and revolution, for the cause of human revolution. (Sarup 1978:120)

These three methods, critical analysis, conscientization, revolutionary praxis used singularly or in unison have, in South Africa, been extremely powerful weapons because they have, on occasions, effectively neutralized existing institutional structures such as the law courts, black municipal councils, the Department of Education and Training and, in their place, erected counter-institutions such as peoples' courts, street committees, The National Education Crisis Committee (NECC), Student Representative Councils, The Azanian Students' Association (AZASO), Parent-Teacher-Student Associations (PTSA's).

Although these strategies have proved effective, they have also caused great human suffering and material destruction. Hawthorne (1991:37), for example, pointed out that although Apartheid was to blame for much of what happened in this country, the methods used to counter Apartheid have also to share responsibility:

> Apartheid, by robbing black community and family life of all authority and cohesion, is to blame. But so, to some extent, is the type of fight that blacks chose to wage against white oppression. (Hawthorne 1991:37)

More general criticism of Marxism have come from other quarters. Bowers (1984:4), for example, was critical of the

consciousness raising school of pedagogy which he felt, together with liberal-technicism, led to what Nietzsche called 'nihilism'. The inherent danger which Bowers saw in the dialectic of consciousness-raising was that by revolutionizing pedagogy into an adversarial relationship which made the rejection of the status quo and tradition into an ontological necessity it,

> ...threatens the foundations of culture and ultimately erodes the basis of belief itself.

Capra (1982:302) felt that the major flaw in Marxist (and Social Darwinists) epistemologies, was their view of society and life in terms of struggle, competition, opposites, thereby ignoring the level of cooperation evident in nature:

> Detailed study of ecosystems over the past decades has shown quite clearly that most relationships between living organisms are essentially cooperative ones, characterized by coexistence and interdependence, and symbiotic in various degrees. Although there is competition, it usually takes place within a wider context of cooperation, so that then larger system is kept in balance.

Eccles ard Robinson (1984:94), have the following to say about Marxist theory and practice:

> ...[Marxism] was fatally simplistic, assuming as it did that human 'consciousness' is fabricated out of a pattern of economic forces and 'modes of production' that have operated throughout the history of civilization. It is not necessary here to recount the number of failed predictions emanating from Marxist economic theory, nor is it worth exploring the enormity of the miseries spawned by the several large-scale attempts to govern according to orthodox Marxist (or Marxist-Leninist) principles. It is sufficient here merely to acknowledge that single-cause theories of the human person are doomed to the category of the ridiculous, no matter how solemnly they are advanced or rapturously adopted.

In summary, because the hegemonic institutional definitions of reality seemed exclusively to reflect the Cartesian (more

exactly, Capitalist) symbolic world, Socialists (in particular Marxists) found themselves at variance with the status quo. Their response whether as academics or activists, was to challenge institutional structures through critical analysis, consciousness raising, and/or revolutionary praxis in the hope of bringing into being a society which was, in their view, fair. Marxism has had a major impact upon socio-political and educational developments within South Africa. The Socialist epistemological world-view, however flawed, can therefore not be ignored.

2.3.3 Deep Ecology epistemological world

Deep Ecology was shown (1.3.3) to represent an important paradigm shift in human understanding of the nature of the universe. In the present section justifications for Deep Ecology will be sought in Biology and Physics, after which Deep Ecology will be shown operating in religion.

Turning firstly to the field of Biology, Sagan (1978:23) pointed out that all life forms descend from a common ancestor:

> ...the book of life is very rich, a typical chromosomal DNA molecule in a human being is composed of about five billion parts of nucleotides. The genetic instructions of all the other taxa on Earth are written in the same language, with the same code book. Indeed the shared genetic language is one line of evidence that all organisms on Earth are descended from a single ancestor, a single instance of the origin of life some four billion years ago.

Further evidence of a unified world comes from the field of physics. Heisenberg demonstrated that the world is not a collection of separate objects but consists rather of a web of relations. In this regard he stated,

> Isolated material particles are abstractions, their particles being defined and observable only through their interactions with other systems. (Heisenberg, quoted in Capra 1982:69)

Similar conclusions were drawn by Henry Stapp:

> An elementary particle is not an independently existing unanalyzable entity. It is, in essence, a set of relationships that reach outwards to other things. (Stapp 1971:1310)

John Bell's celebrated theorem demonstrated that the reality underlying the Einstein-Podolsky-Rosen experiment[19] must be non-local[20]. Henry Stapp said of this theorem that it proved:

> ...in effect, the profound truth that the world is either fundamentally lawless or fundamentally inseparable. (Stapp, quoted in Capra 1982:75)

Bell's theorem thus suggests to us :

> ...a new notion of unbroken wholeness which denies the classical analyzability of the world into separately and independently existing parts...The inseparable quantum interconnectedness of the whole universe is the fundamental reality. (Herbert 1985:18)

Even though the description of Deep Ecology has postulated a unified universe there is no clear indication whether it is in fact a closed Platonic, or an open Aristotelian system (Barrow 1991). Chaos theory, for example, has revealed that there are situations in Mathematics, Physics, Biology when it is not

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[19] The Einstein-Podolsky-Rosen paradox was posed by Einstein to prove that quantum theory was still incomplete. The EPR thought experiment concerned two momentum-correlated electrons spinning in opposite directions over macroscopic distances. In terms of this experiment it was shown that if the properties of the electrons were to be measured at any point along their separate paths they would be found to be correlated exactly. According to Einstein this was impossible because it would mean that the 'message' between the two of them would be travelling faster than the speed of light (which is, according to Einstein, an absolute.)

[20] In an interview with John Bell conducted by Omni magazine it was stated that, 'Bells proof mathematically eliminates the possibility that a "hidden variable" could explain this connection. Somehow the particles are linked, even if there are light-years between them ' (Mann and Crease 1988:86).

always possible to predict outcomes (Bullock 1990:118-9). The weather, water turbulence, the irregular squiggle of the brain's electroencephalogram, even the swing of a pendulum have all been shown to be chaotic (Davies 1990:49-51); McAuliffe 1990:44, Percival 1991:42-5). Chaos theory might indicate that the universe is not, as has always been thought, a closed deterministic system. Davies (1990:51) speculated on some of the implications of chaos theory:

> ...even accepting a strictly deterministic account of nature, the future states of the Universe are in some sense 'open'. Some people have seized on this openness to argue for the reality of human free will. Others claim that it bestows upon nature an element of creativity, an ability to bring forth that which is genuinely new...Whatever the merits of such sweeping claims, it seems safe to conclude from the study of chaos that the future of the Universe is not irredeemably fixed.

The review of scientific evidence was necessary as it supported the suggestion (1.3.3 and 1.4.3) that Deep Ecology is a 'more correct' epistemology, because it appears to be modelled on a more accurate model of the universe.

The principles of Deep Ecology will be shown to hold for religion as much as they hold for biology, physics, politics or any other manifestation. Teilhard de Chardin (1973:17) pointed out that some modern Christians tend to reduce God by presenting just the didactic or disciplinary side of their creed:

> It is hardly surprising, therefore, that to many people who have been brought up on firm concrete realities the Christian revelation seems hopelessly frigid and unadult.

In order to avoid reductionism he called upon Christians to:

> ...offer men a theology in which Christ will be seen to be linked with the development of the whole universe as physical and as great as he is. We must give them a gospel in which moral teaching and the precepts of Christ are presented not simply as the guarantee of an individual reward but as the road

> organically essential to the collective success of the whole of life (ibid 17-18).

Teilhard de Chardin's (1966:331), cosmology viewed life as 'a universal function of the cosmos' and humankind as an essentially part of this process:

> ...the human group is in fact turning, by planetary arrangement and convergence of all elemental terrestrial reflections, towards a second critical pole of reflection of a collective and higher order; towards a point beyond which (precisely because it is critical) we can see nothing directly, but a point through which we can nevertheless prognosticate the contact between thought, born of involution upon itself of the stuff of the universe, and that transcendent focus we call Omega, the principle, which at one and the same time makes this involution irreversible and moves and gathers it in. (ibid 335-6)

Having highlighted scientific evidence of the unity of the cosmos, and having suggested that religion is itself a product of gathering complexity, it becomes appropriate to explore the metaphysics of Deep Ecology. It was felt that the most effective way of achieving this aim was to use elements of the bootstrapping method to merge the ideas of three independent thinkers: an Anglican poet, Thomas S. Eliot; a non-denominational religious teacher, Jiddu Krishnamurti; a nuclear physicist, Professor David Bohm. It is hoped that the following extracts will show that Deep Ecology is primarily an attitude or disposition; that insight and understanding require honesty, clarity and, above all, humility; that exploring metaphysics results in a sense of awe, reverence[21]

[21] That the suggested approach is sound is confirmed by Albert Einstein (1984:111): 'And so it seems to me that science not only purifies the religious impulse of the dross of its anthropomorphism, but also contributes to a religious spiritualization of our understanding of life.'

In the first extract, Eliot, echoing Ecclesiastes 3:15 from the Old Testament, stated that God[22] is '...before the beginning and after the end', and 'always now'. However, Eliot added that words are unable to describe or explain God: 'words strain, crack and sometimes break...' Attempts, therefore, to reduce God to human terms are vain and futile:

> ...And the end and the beginning were always there
> Before the beginning and after the end.
> And all is always now. Words strain,
> Crack and sometimes break, under the burden,
> Under the tension, slip, slide, perish,
> Decay with imprecision, will not stay in place,
> Will not stay still. (Lines from Burnt Norton,
> Eliot 1970:194)

That God cannot be reduced to human terms, does not preclude the possibility of humans participating in the mystery of God. Such participation has been called various names: communion, prayer, meditation, contemplation. Eliot's description of communion is, however, couched in paradoxes. The 'darkness of God' is described as 'light'; the 'stillness' is described as 'dancing'. Achieving a state of heightened awareness necessary for deep contemplation is also, paradoxically, through non-achievement: i.e. through un-hoping ('for hope would be hope for the wrong thing'); un-loving ('for love would be love of the wrong thing'); un-thinking ('for you are not ready for thought'). Faith *in*, hope *for*, or love *of* something are all wrapped in self and therefore symptomatic of avarice, no matter how seemingly noble the object of desire. Eliot, showed that communion cannot be invoked but is, instead, a by-product which comes from, stillness ('I said to

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[22] The researcher is aware that the use of the word, God is, in itself, problematic. In this regard Lorenz (1988:239) wrote: 'In the Ten Commandments is written "Thou shalt not take the name of the Lord thy God in vain." I experience a deep inhibition to naming Him at all; most especially, I find the repeated use of the masculine personal pronouns very near to being a blasphemous presumption, even if they are written with capital letters.'

my soul be still'), openness ('let the dark...'); patience ('and wait'):

> ...I said to my soul, be still, and let the dark come upon you
> Which shall be the darkness of God...
> I said to my soul, be still, and wait without hope
> For hope would be hope for the wrong thing; wait without love
> For love would be love of the wrong thing; there is yet faith
> Yet the faith and the love and the hope are all in the waiting.
> Wait without thought, for you are not ready for thought:
> So the darkness shall be the light, and the stillness the dancing. (lines from East Coker, Eliot 1970:200-201)

The nature of God is explored in the following dialogue between Krishnamurti and Bohm. Krishnamurti, like Eliot, made use of paradoxes to describe God. God, for example, was described as 'nothingness', but in the same breath it is said that 'nothingness' is, in fact, 'everything'. God is described in various other ways: 'mind', 'total energy', the ground of the whole', even '...that'. One description of God is similar to an earlier description by Eliot: 'it is out of that everything arises, and into which it dies'. This description, like Eliot's description, echoes Ecclesiastes.

There are further similarities between Krishnamurti and Bohm; and Eliot, namely in the extremely tentative, reverential manner in which they explore the nature of God. Significant is the fact that Krishnamurti also viewed the activity of self as counteractive: 'We can only say we are part of it when there is no "I"'; while the following could almost have been a paraphrase of Eliot: 'I must be awfully careful here. You know one must be awfully careful not to be romantic, not to have illusions, not to have desire, not even to search'. Romanticising, fabricating illusions, desires, or searching for God are counter-productive as they denote subtle forms of greed. Communion with God cannot be willed; it comes as grace. As Krishnamurti stated, 'It must happen':

B: You are saying that the universe is alive, as it were, it is mind, and we are part of it.

K: We can only say we are part of it when there is no 'I'

B: No division.

K: No division. I would like to push it a little further; is there something beyond all this?

B: Beyond the energy, you mean?

K: Yes. We said nothingness, that nothingness is everything, and so it is that which is total energy. It is undiluted, pure, uncorrupted energy. Is there something beyond that? Why do we ask it?

B: I don't know.

K: I feel we haven't touched it - I feel there is something beyond.

B: Could we say this something beyond is the ground of the whole? You are saying that all this emerges from an inward ground?

K: Yes, there is another - I must be awfully careful here. You know one must be awfully careful not to be romantic, not to have illusions, not to have desire, not even to search. It must happen. You follow what I mean?

B: We are saying the thing must come from *that*. Whatever you are saying must come from that.

K: From that. That's it. It sounds rather presumptuous...everything is dying, except *that*. Does this convey anything?

B : Yes. Well it is out of that everything arises, and into which it dies.

K: So that has no beginning and no ending. (Krishnamurti and Bohm 1985:36-45)

In the final dialogue, Bohm and Rene Weber discuss energy. Their dialogue is relevant because it lends scientific corroboration to the theory that the material, Phenomenal world is a manifestation of some source of energy or power which, according to Bohm, 'cannot be captured within our knowledge'. In explanation, Bohm stated that if one were to

compute the amount of energy in space with the shortest possible wave length $(100\text{-}^{37}cm)$[23], then:

> ...it turns out that the energy in one cubic centimetre would be immensely beyond the total energy of all the known matter in the universe.

Continuing;

> B: What you can say is that the present state of theoretical physics implies that empty space has all this energy, and matter is a slight increase of the energy, and therefore matter is like a small ripple on the tremendous ocean of energy, having some relative stability, and being manifest. Now, therefore, my suggestion is that the implicate order[24] implies a reality immensely beyond what we call matter. Matter itself is merely a ripple in this background.
>
> W: In this ocean of energy, you are saying.
>
> B: In this ocean of energy. And this ocean of energy is not primarily in space and time at all...It's in the implicate order ...And in fact beyond this ocean may be still a bigger ocean because, after all, our knowledge just simply fades out at this point. It's not to say that there is nothing beyond that.
>
> W: Something not characterizable or nameable?
>
> B: Eventually, perhaps, you might discover some further source of energy but you may surmise that would in turn be floating in a still larger source and so on. It is implied that the ultimate source is immeasurable and cannot be captured within our knowledge. (Bohm, interviewed in Weber 1982:56-57)

A tentative understanding of the nature of God and humankind's relationship with God emerge from the above five extracts. Firstly, it should be clear that there is no way in which God, as a concept, can be explained, interpreted or communicated.

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[23] It is significant to note that the shortest distances that physicists have hitherto probed is 10^{-16} cm.

[24] Bohm postulated an enfolded-unfolding universe in what he terms, the implicate order.

Secondly, thought cannot be used as a medium to reach God[25]. Thirdly, God's beneficence cannot be summoned, conjured, implored. If it comes, it comes in the form of grace to those who are in deep contemplation or prayer. It is this process which, according to Krishnamurti (1964:64) brings into being a 'mutation'[26] out of which is born 'the individual':

> And the moment there is that space untouched by society, then in that state there is a mutation...And you need a mutation in this world, because that mutation is the birth of the individual...[because] What we need in this world at the present time, is an individual who is born out of this emptiness.
>
> Have you listened to a drum played often? The man who plays on it, can produce any sound; and that sound is clear, sharp, bright, penetrating, only when the drum is empty. If that drum was full, there would be no clear, precise, lovely tone.
>
> In the same way when the mind has space, there is this extraordinary quality of emptiness; then in that state it acts; and that action is the outcome of total mutation. It is only that mind that can understand that which is beyond itself.

It is this individual who, in the true sense of the word has become 'indivisible' (*in* - not, *dividere* - to divide); who then acts from, 'the extraordinary quality of emptiness'; who becomes, not independent, i.e. separated from others but autonomous, i.e. guided by 'that which is beyond itself' as expressed in action through particularity (footnote 16).

In summary, evidence from Biology and Physics was quoted in support of Deep Ecology. Also mentioned was the fact that although a universal unity is assumed by those who ascribe to the Deep Ecology epistemology, such unity is not necessarily

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[25] This view of the materialistic, divisive, temporal nature of thought is not shared by all those who ascribe to the Deep Ecology epistemology. As far as the researcher is aware, Krishnamurti is alone among modern philosophers to have pointed out that although thought is necessary for functioning in the world, thought cannot go beyond itself.

[26] See also Teilhard de Chardin (8.4)

closed. The principles of Deep Ecology were demonstrated and shown operating metaphysically.

A range of ideas was introduced in this section. Firstly, was the perception that the action of thought can take the thinker only part of the way, after which it becomes a hindrance rather than the means to the end (as assumed in the Cartesian epistemology), or something which must be moulded from false consciousness into true consciousness (as assumed in the Marxist, Socialist epistemology). Secondly, the understanding of individuality not as a self-contained, independent parcel wrapped in skin filled with concepts, beliefs, theories, knowledge but as a centre of stillness which has been brought into being by 'that which is beyond itself'. Thirdly, the perception of humankind as part of the equation and not the only focus.

The implication of these principles on the Four Area model and an understanding of genius will be explored in 2.4 and later chapters.

2.4 The human condition in relation to each epistemology.

There is a danger inherent in the above discussion, for the human being to be seen in too abstract a light. Therefore, it was deemed necessary to focus more particularly on the human condition and then to relate the discussion to each epistemology. In order to achieve this aim, it is necessary to have a clearer understanding of what is meant by the term, human condition. Although there are various views of wo/man, the researcher believes that the human condition has been most thoroughly analyzed by existentialist philosophers such as Kierkegaardt, Marcel, Heidegger, Sartre. He is aware that his discussion of their philosophies will be incomplete and, in certain respects, contradictory (Sartre, for example, was an atheist, and his philosophy contains dualistic elements). His purpose is, however, not to explore existentialism but to show

how certain existentialist concepts throw light on the topic being researched.

Gabriel Marcel claimed that every single human being is 'incarnated' into every situation (Copleston 1965:134-5). Through incarnation, each human being participates in her/is own particularity. By particularity is meant the encounter with the here and now. It is this here and now which Pascal (quoted in Olson 1962:41) described in the following extract:

> When I consider the short duration of my life, swallowed up in the eternity before and after, the little space which I fill, and even can see, engulfed in the infinite immensity of space of which I am ignorant, and which knows me not, I am frightened. I am astonished at being here rather than there. Why now rather than then!

Few human beings, however, acknowledge that the human condition is rooted in the here and now, let alone experience it in Pascal's vividness. But whether it is acknowledged or not each human is grounded in particularity.

Particularity confronts each individual from moment to moment with choices that lead inevitably to what Martin Heidegger called authenticity (being-in-the-world) or its counter-pole, inauthenticity (being-in-the-midst-of-the-world). It will be necessary to explain these two conditions.

According to Sartre, those individuals who lead authentic lives have undergone a radical conversion as a result of realizing that they are not bound to socially constructed definitions of reality but are in fact ontologically free. They therefore see themselves as:

> ...the unique source of the world's values and intelligibility (Olson 1962:139)

Such people assume responsibility and thus transcend their pasts by living each new moment with intensity.

According to Heidegger, there is no paradise or condition from which humans have fallen, only a superior mode of being

to which they might rise through experiencing being-in-the-world. To be-in-the-world it is necessary for the individual to be present to the world through relationship. It is assumed that, in time, such people develop a level of awareness which:

> ...hearkens to the voice of Being and which consents to be the 'shepherd of Being'. (ibid:138)

Being in the world has been depicted as a state of luminosity akin to the rich world of the poet or the Platonic sense of One (ibid: 134-139). Being-in-the-world was described by Krishnamurti (1964:57-8) in the following way:

> Then you will find - find, not believe - for yourself a state where there is complete existence, complete being, in which there is no sense of fear, no anxiety, no sense of obedience, compulsion; a complete state of being; a light that does not seek, that has no movement beyond itself.

In contrast, being-in-the-midst-of-the-world is, according to existentialist thought, the consequence of inauthenticity. Sartre, for example, claimed that humans shrink from acknowledging their particularity by escaping into comforting theories, support systems, social definitions of reality mediated by what Heidegger called, *das Man*, 'the Public' or 'the Anonymous They'. This situation is described by Chet Bowers (1974:75):

> There is something paradoxical about the human situation in that the individual can use his freedom in a way that undermines his own autonomy, and thus his growth towards maturity. He can choose to internalize into his own explanatory framework other people's explanations of what is real. In this way he avoids the risk of making his own interpretations. This allows him the illusion of escaping responsibility for his own existence; he can then lead a life of existential anonymity.

Being-in-the-midst-of-the-world accurately describes the existential limbo in which such people find themselves. They

have no sense of their own uniqueness, worth, intelligibility, Beingness. Theirs is a state of fallenness or *Verfallenheit*, according to Heidegger.

It should now be possible to measure each epistemology against the existential human condition. First of all the Cartesian epistemology will be examined.

Authenticity can be achieved through the exercise of reason. Reason, thought, the use of the intellect are necessary if humans wish to examine their lives, natural phenomena and social reality critically. What, however, becomes problematic is when reason or thought become absolutized in the Cartesian sense. When this happens self takes on an independent existence of its own which inevitably leads to the fragmentation that typifies the Cartesian world-view. Each person then becomes a separate being-in-the-midst-of-the-world.

The existential sense of 'self', in contrast, is seen as present to, but not literally in the world as, for example, a stone or a chair. As Sartre pointed out only material substances are separated by space. Human beings are not separate from the world or one another:

> It is not man and the world, but rather physical objects, which are radically separate from one another. Physical objects are separated by space. But there is nothing, not even space, to separate the person as a conscious being from the world. The relationship between man and the world is internal ...One may, if one likes, talk about a psychic distance separating consciousness from physical objects. But psychic distance is a peculiar kind of distance. It is a separation which is also a presence (Olson 1962:175)

It is for this reason that Heidegger argued that humans do not consist of self-contained essences:

> The reason is that by his [i.e humankind's] nature he is already out of doors, out in the street. We are immediately and directly present to one another. (ibid)

For the existentialist, 'self' is therefore not experienced as an entity in itself but as a continually transforming or transcending reference point:

> Just as I am my past but am not my past because my freedom constantly projects me into the future, so I am what others have made me but am not what others have made me because I must always transcend my being-for-others....The important thing is not what one [i.e. the Other] makes of us, but what we ourselves make of what one makes of us. (Sartre, quoted in Olson 1962:177)

In the above discussion a distinction was made between the idea of a separate, independent self which led to being-in-the-midst-of-the-world, and the idea of self which was present to but not literally in the world and which constituted being-in-the-world. It has already been explained that the Socialist epistemology has argued against the idea of an independent, separate self, an 'I' in favour of a collective sense of 'We'. Socialists base their assumptions on the fact that reality is socially constructed (1.2., 1.3., 2.3.2). There are, however, two levels at which the sense of 'we' can be experienced. At the first level the sense of 'we' can be experienced through the mediation of *das Man*, through consciousness raising or re-indoctrination. It can be argued, however, that this sense of 'we' leads to inauthenticity because the experience is tangential. The second level at which the sense of 'we' can be experienced is through participation with Being. This sense of sister/brotherhood, it can be argued, leads to authenticity because it is at a deeper than ideational level.

A similar scenario exists for Deep Ecology. A dogmatic reductionist understanding of God would lead to inauthenticity; an exploration into the mystery of God as manifested through particularity and conducted with the quality and intensity of Eliot, Krishnamurti and Bohm would be expected to bring about authentic, Being-in-the-world.

An understanding of the existential authenticity of Being-in-the-world will be necessary when analyzing intelligence, giftedness, genius and the Four Area model in the following chapters.

2.5 Conclusion

It was shown (2.3.1) that because Descartes and Newton made it possible to explain the universe simply as a giant machine operating under mathematical laws (Capra 1982:23 and Harvey P. 1967:228) they succeeded in de-mythologizing the physical world. Once the world 'out there' had been de-mythologized it was a small step to regarding the physical world outside of self as an 'it'. Consequently, reality became subsumed by the new epistemology, brought under control and manipulated. The Cartesian epistemology in all its versions (Rationalism, Individualism, Industrialism, Capitalism, Nationalism, Imperialism, Liberalism) became so powerful that it has largely remained unchallenged for more than three centuries.

Although the Socialist, more exactly, Marxist epistemology is part of the Cartesian framework, the fact that it successfully erected a symbolic framework in opposition to the hegemonic reality warranted it a category on its own. Marxist theorists understood that reality is socially constructed. Their primary strategy was therefore to reconstruct reality in their own light.

Whereas the Cartesian epistemology brought into being a culture of Imperialism which causes alienation; the Socialist epistemology legitimized an 'environment of intimidation' (Christina Sommers, quoted in Elson 1991:62), which leads inevitably to anarchy.

Deep Ecology, in contrast to both Cartesianism and Marxism is neither a hands-on epistemology nor a social blueprint for change. Instead it represents a new way of viewing reality as interconnected and open. As such, it represents a paradigm shift from a dualistic view of the

universe. Those aligning themselves with Deep Ecology would accept the existential responsibility of bringing authenticity into being through acceptance of particularity. Deep Ecology requires an attitudinal change which comes not only from thought, but through ongoing self-transcendence which allows for participation with that which is called, God.

CHAPTER THREE

CRITICAL ANALYSIS OF THE GUIDE, STATED PHILOSOPHY AND GOAL, OF THE FOUR AREA MODEL FOR CAPE TOWN SCHOOLS

3.1 Introduction

The politics of educational model-building is discussed (3.2). The point is made that educational models do not exist in isolation but are the product of various forces including the architects' epistemological frame of reference; perceptions of clients' needs; awareness of a wider public. An educational model born from the foregoing dynamics usually manifests an inner cohesion called its ideology. Critical analysis is specifically designed to decipher and read a model's ideological bias. A critical analysis and comparison of the Four Area guide to schools (3.3), the philosophical statement (3.4) and goal (3.5) are shown to reflect ideological dissonance. A revised, refined, contextually appropriate goal is discussed and recommended (3.7).

3.2 Ideology

An educational model such as the Four Area Curriculum Extension and Enrichment model does not exist in a vacuum. The architect(s) would have in mind a community of teachers and pupils for whom the model is intended. The architect is also conscious of other factors while designing the model, for example current thinking on gifted education, and how to make the model as acceptable to as broad a spectrum of potential supporters and critics as possible. The architect is also bound to put something of himself into the model: his own assumptions, beliefs, ideals, prejudices. In its totality,

the assumptions upon which such a model is built, and held together is its ideology.

Ideology, according to the Centre for Contemporary Cultural Studies at Birmingham (quoted in Dewar 1986:14), is that

> ...which *conceals* or *resolves* in an imaginary or idealistic way the problematic character of social life.

Berger (1971:13) claimed that institutions operate at a symbolic level to integrate different provinces of meaning in order to legitimize their functioning both cognitively and normatively. According to Sarup (1984), ideology operates through the control of meaning by manipulating modes of thinking, categories, symbols that we take for granted. Gilbert (1984:41-2) saw ideology as:

> ...theories which articulate particular forms of social practices and provide the framework within which social relations and institutions are related to beliefs and ways of understanding the social world.

It is the work of the Critical researcher (1.3.2, 1.4.2 and 2.3.2) to decipher, interpret, read and discuss a model's ideology, normally from a Socialist, Marxist perspective. Gilbert (1984:49) felt that this can best be done by analyzing and interpreting the model's symbolic framework as reflected in the:

> ...complex system of jargon, metaphor and connotations...

The guide to the Four Area Curriculum Extension and Enrichment model will be analyzed in the following section in order to determine its symbolic framework. This should serve as a foundation for the critical analysis of the philosophical statement and goal.

3.3 Ideological bias as reflected in the guide for Schools

Simply by paging through the guide[27] to the Four Area model the researcher would notice a strong metaphysical bias reflected in the logo, illustrations, lay out and choice of quotations. It will be argued throughout this section that each of these components reflects the Deep Ecology epistemology.

The logo which is positioned in the centre of the cover of the guide, designed by Janice Mentz, consists of the outline to a human profile enclosing planet Earth. Earth is pictured encircled at the equator by a band of people holding hands. The accompanying quotation reads, 'You are the world, and the world is you'.

The logo can quite legitimately be interpreted as symbolizing the Deep Ecology framework. Although there is no direct reference to Pierre Tielhard de Chardin in the guide, the human profile enclosing Earth does have resonances of the 'noosphere', the 'new skin' or 'soul' which according to Teilhard de Chardin envelops Earth's biosphere (Teilhard de Chardin 1966:200-4). The explanatory text accompanying the quotation (Krishnamurti, quoted in the Guide 1986:11) reads:

> You are the world...symbolizes the profound inter-relatedness of all life, to underline the individual's responsibility and accountability...

The text reinforces the Ecological theme with its reference to the 'interrelatedness of all life'. As amplification, an additional reference to Krishnamurti (not quoted in the guide) might help explain the meaning and significance of the quotation:

> The society in which we live is the result of our psychological state. The society *is* ourselves, the

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[27] The logo, illustrations, quotations were created for the Cape Town guide and therefore reflect the personal perspective of the author and not necessarily that of the Cape Department of Education. The statement of philosophy, goal, and certain of the aims were arrived at jointly in 1987 by the seven regional co-ordinators (including the researcher) and would therefore more accurately represent departmental thinking.

> world is ourselves, the world is not different from us. What we are we have made the world because we are confused, we are ambitious, we are greedy, seeking power, position, prestige. We are aggressive, brutal, competitive, and we build a society which is equally competitive and violent. It seems to me that our responsibility is to understand ourselves first, because *we are* the world. This is not an egotistic, limited point of view, as you will see when you go into these problems. (Krishnamurti 1972:42)

Krishnamurti's understanding of 'psychological states' is similar to what Marxists call 'consciousness', Kant's Phenomenal world and Heidegger's *Verfallenheit*. The following explanation should make this clear.

In terms of Cartesian epistemology 'psychological states' would be viewed as independent of reason, part of nature and thus able, through the exercise of reason, to be understood, and harnessed or suppressed. In terms of Socialist epistemology the psychological states of humankind would be the result of false consciousness created by Capitalist, Liberal, Individualist institutions, values and norms. In terms of Deep Ecology, humankind's psychological states would not be viewed as something separate from humans, nor reducible to one set of causes. They would be the consequence of a whole set of circumstances centred around humankind's being-in-the-midst-of-the-world. According to Krishnamurti, therefore, when humans look at the world with its political and civil strife, human and natural exploitation they are not looking at phenomena separate and outside of themselves. Insight into the nature of the problem requires, according to Krishnamurti (1964:6), 'extraordinary seriousness':

> So our concern then is to understand - especially for those who are really serious; and life demands that you be serious because you cannot live in this world casually. You cannot be concerned merely with your own worries, with your own amusements, with your own fears. You are a part of the world and you have to understand yourself and the world. And this understanding demands extraordinary seriousness, and

> the task is immense. And when you are serious, you have to go to the very end of that understanding, you have to see the whole implication of existence.

The second aspect of the Four Area Enrichment guide which will be analyzed will be the series of pictures drawn by Alexia Bonnici, illustrating the lower portion of each page from three to the end of the guide. The majority of pictures are positioned in the right hand corner of the page. The first picture on page three is of an atom. A DNA molecule is drawn on page four. The DNA molecule is followed on page five by a cell and then, from pages six to nine, by illustrations of a developing human fetus, with particular emphasis on its brain formation. The illustrations on pages ten and eleven are not positioned in the right hand corner but are, instead, centred in the middle of the lower pages. The illustration on page ten is of a white dove in rising flight; that on page eleven of a:

> Copy of the small gold anodised aluminium plate... attached to the side of the Pioneer 10 spacecraft that left the solar system in 1974. (Guide: 11).

The series of illustrations from page twelve through to the end of the guide are of Earth seen from successive points further into space.

There are explanations in the guide on how the illustrations are to be interpreted:

> ...these illustrations attempt to depict the planes of existence in inner and outer space, and to place man in time and space. (ibid)

There is also an explanation in the guide as to how the dove on page eleven is to be interpreted. The explication consists of a quotation taken from page 21 of Odyssey magazine of June 1982 in which it is stated:

> The dove is a symbol of the spirit of life and of light; of the soul; the passing from one state or world to another; chastity, innocence, gentleness,

> peace. The dove with an olive branch is a symbol of peace, as well as of renewal of life. It is also associated with the descent of power. (ibid)

The gold anodised aluminium plate attached to Pioneer 10 pictured in the guide, depicts a male and female nude (the male figure is holding up his hand in greeting), as also selected mathematical and astronomical symbols. The explanatory text by M. Marten, referred to in the guide:11 states:

> It is hoped that the easily understood scientific language will communicate information about the builders of the spacecraft.

The subject matter depicted in the illustrations, the lay out of the illustrations within the guide, as also the text offer sufficient evidence that the Deep Ecology (1.3.3, 1.4.3 and 2.3.3) epistemological world is being represented in the guide[28]

Evidence of Deep Ecology is portrayed in the following ways. All life forms on Earth are represented by the picture of the DNA molecule. The DNA is shown linking the quantum world, represented by the atom, and the biological world, represented by the cell. Humankind, as embodied in the developing embryo, is shown as a progression of the cell. Intelligence, contextualized within the human, is represented in the maturing brain. The spiritual realm, as symbolized by the dove, is central to the total picture, and is significantly placed half way between the quantum and cosmic poles. Humankind's technological achievements are symbolized by the small gold plate on the Pioneer 10 spacecraft. It is significant to note that it is warm, friendly technology that is being represented, and not a cold, alienating, technicist, technology. Earth with her myriad life forms is quickly

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[28] The pictures depicted in the guide also form the basis of further discussion about the biological foundations of Deep Ecology (4.4).

dwarfed, vanishes from view and then seems lost within the vastness of space. The total picture, however, is not depressing. It communicates a comprehensive picture of world-within-world, reality-within-reality all merging into a universal metaphor of gathering complexity.

The third aspect which will be analyzed will be the graphic representation of the Four Area model created by Alixe Lowenherz on page five of the guide.

The graphic portrays a skewed pyramid consisting of four tiers, each representing an area of enrichment. In terms of Area One, where provision is made for all pupils, a line of children spans the base. As provision becomes more complex smaller groups of children are represented at each of the remaining tiers until, narrowing through to the apex at Area One, only one child's head is portrayed. Lines have been drawn to represent movement up and down the pyramid. At the suggestion of Dr Meintjes, additional lines have been included to represent lateral movement as well.

The pyramidal form is often used to represent hierarchies. A hierarchy, in the present context could easily be interpreted as prototypically elitist. Such an interpretation would clash fundamentally with the Deep Ecology symbolic world. Closer analysis of the diagram, however, indicates that the model is not meant to be seen as a static, stratified, elitist, hierarchy[29]. The lines, for example, denote movement. The sense of movement is enhanced by the use of the word 'changing' three times in captions describing Area Three provision. It is also significant that although the groups of children represented in Area Three consist of fewer children than those in Area Two, the total number of children represented in Area Three exceeds the number in Area Two.

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[29] It might, also be an erroneous assumption to see all hierarchic structures as elitist. Capra, for example, pointed out that stratification in society is not necessarily to maintain control but rather to facilitate the organization of complexity (Capra 1982:317).

Egalitarian ideology must also not cloud the real situation. Genius is, by definition, a rare quality. There was, for example, only one Karl Marx; there have been innumerable Marxists. It follows, therefore, that comparatively fewer children would be represented at the Area Four level than at Area One.

The practical function played by the graphic representation needs also to be considered. Clearly, the strength of the diagram has been the economical, clear, crisp, comprehensive manner in which it has managed to convey the essential nature of the Four Area model. This fact alone would reinforce the view that the graphic plays an integral role in augmenting the Deep Ecology epistemology.

In conclusion it can be stated that the Four Area Curriculum Extension and Enrichment guide for schools, seen at a symbolic level, as depicted in the logo, illustrations, text and graphic communicate the Deep Ecology symbolic epistemological world. The extent to which Deep Ecology can be said to inform the philosophical statement and goal, as articulated on page two of the guide, will be explored in 3.4 and 3.5.

3.4 Philosophy of the Four Area Curriculum Extension and Enrichment model

The philosophical statement in the guide (Guide:2) reads as follows:

> The GCE programme of the Cape Education Department acknowledges the God-given unique values, needs and talents of every pupil.
>
> The ultimate goal of the programme is to develop within the pupil a desire for excellence and a sense of individual responsibility to the school and to a changing society.

There is a degree of confusion reflected in the above declaration. The first section makes reference to God's role in providing each pupil with a unique set of values, needs and

talents. This assertion, however, is the only reference closely resembling philosophy because in the second part of the statement the focus switches to 'the ultimate goal of the programme'. This, in turn, appears to be a duplication, considering that there is a section below on the same page headed: 'Goal of the Cape Education Department G.C.E. Programme'.

The content of the philosophical orientation is essential Cartesian. The assumption that values, needs and talents are 'God-given' is essentially dualistic and implies that the rest of nature is *not* 'God-given'. This is summarized by Bateson (1972:468):

> If you put God outside and set him vis-`a-vis his creation and if you have the idea that you are created in his image, you will logically and naturally see yourself as outside and against the things around you. And as you arrogate all mind to yourself, you will see the world around you as mindless...

The assumption that God is separate from nature was discussed in 1.3.3 and 2.3.3. and shown to be at variance with Deep Ecology. This is not, however, to imply that those who ascribe to Deep Ecology in any way reject the concept, 'God' (in fact, the contrary). What is, however, at issue is a reductionist conceptualization of the sacred, which leads to the '...privatization of religious belief' (Bowers 1982:530).

The belief that children's needs and talents are 'unique' appears to be based on the Cartesian epistemology which assumes that knowledge is individually, not socially, constructed (2.3.1 and 2.3.2) as also the humunculus view of giftedness to be discussed (4.2), and not in the existential sense of the human being grounded in particularity (2.4).

Piaget, the doyen of developmental psychology, hypothesized a period of ontological egocentricity during the child's sensori-motor phase (birth to, approximately, eighteen months) which, if proved, would give credibility to an 'individualistic' view of wo/man. Piaget's claim that during

this phase, infants are unable to perceive objects or social events before the appropriate mental structures have been constructed has, however, been disproved by D. Lee and E. Aronson (Butterworth 1987:69), who demonstrated that infants were not at the mercy of entirely subjective impressions. Their findings reflect the view that an infant's biological and perceptual world is mediated by significant others. The evidence shows therefore that humans constitute their world within a web of human relations which is ordered by language. It therefore appears that the word 'unique' needs to be carefully circumscribed in order not to perpetuate unsubstantiated assumptions.

What is not in dispute is the fact that at one level every human being is a unique manifestation. For example, no two sets of finger prints have been found to be identical. Clearly it is not the intention of the philosophical statement to talk about uniqueness at the physical level. However, as has been shown, talk of uniqueness at the social level becomes problematic, for there cannot be talk of 'unique values, needs and talents'. It is the very fact that Phenomenal reality is socially constructed that has made it easy for social engineers to manipulate thinking:

> The belief in the unlimited plasticity of humans is naturally welcome to all those people for whom it would be advantageous if the human possessed no inborn abilities and capacities and would, thus, be unlimitedly manipulatable, This explains why the pseudodemocratic doctrine that all men are equal, by which is believed that all humans are initially alike and pliable, could be made into a state religion by both the lobbyists for large industry and by the ideologues of communism. (Lorenz 1987:179-80)

The concept, uniqueness, as intended in the philosophical statement is clearly meant at the deeper level. But what needs to be realized is that uniqueness, as intended at the deeper level, is not a given quality, but something that has to be achieved as a by product of existential authenticity. It

is for this reason that 'uniqueness' as used in the philosophical statement is problematic.

The further claim made in the philosophical statement, that the 'ultimate goal' of the programme is to inculcate a desire for excellence and individual responsibility to the school and changing society is, also in certain respects, problematic. There is, for example, no indication in the statement of what is meant by a 'changing society'. If Bernstein (1970:217) is correct when he stated that much of the context of schools

> ...is unwittingly drawn from aspects of the symbolic world of the middle class',

then it appears that a Cartesian social world is assumed. Such a view of South African society has, however, already been shown to be inadequate considering the radicalization of South African society under the influence of Marxism (2.3.2) As Marxist, Socialist praxis has had little direct impact upon schools falling under the House of Assembly, the guide's philosophical commitment to promoting 'individual responsibility...to a changing society' must be seen as deficient or naive. Finally, although the word 'excellence' has an idealistic ring to it, its decontextualized, abstract use in this statement in unsatisfactory. Either the word should be contextualized or deleted.

Although for reasons of their own the designers (and the researcher includes himself) felt it incumbent upon themselves to formulate a philosophical statement, such a project, although in itself conceivably useful, must also be recognized as potentially hazardous: especially when the attempt is formulated in only four lines. Possibly it would be more pragmatic to dispense with a philosophical statement and rather to integrate 'the philosophy' naturally into the goal and related curricula.

In summary, the Cartesian assumptions upon which the philosophical statement is based clashes with the Deep Ecology

symbolic world that is reflected in the guide. The statement, therefore, needs to be revised to align it with Deep Ecology or, more preferably, integrated into the goal.

3.5 Goal of the Cape Education Department Gifted Education Programme

Esland (1977:30) commented that because education, together with the other 'people-working' professions, needs to compete for public patronage,

> they couch their public pronouncements in terms of the social and economic benefits which their services provide.

Popkewitz (1984) pointed out that it is through the articulated goals of an institution, programme or syllabus etc. where an attempt is made to condense the feelings of what is considered worthwhile (i.e. being responsive to individuality, efficiency, merit) with, at the same time, conveying very little of the hidden assumptions. In this section the hidden assumptions reflected in the goal will be critically analyzed with the view to assessing its appropriateness to both the broader South African context and the Deep Ecology epistemology reflected in the guide.

The stated goal of the programme (Guide:2) is:

> To encourage children to function with competence, integrity, and joy as active, independent, creative and productive people in their society; and so to fulfil their potential and attain their aspirations.

The seemingly optimistic nature of the goal, projecting, as it does, a positive teleological promise of joyous, honest, productive, self fulfilled children within society, places it clearly in the Liberal Cartesian camp where 'the promotion of individual autonomy' (Penny Enslin, quoted in Ashley 1989: 30) and '...freedom or individual liberty' (L. Chesler in Ashley 1989:31); are seen as central ideology (2.3.1).

A close reading of the goal, however, reveals traces of what Bowers (1982:531) termed the 'liberal-technicist's mental template'. According to Bowers the episteme of liberal-western culture is the transmission of a technological consciousness and technocratic rationality which inter alia includes:

> a view of rationalism as the basic mode of knowing and means of controlling the natural world, a secular view of the world that has led to privatization of religious belief, an anthropocentric view of the universe that legitimates the power of the individual to appropriate the physical world for his own ends... (ibid, 530-1)

According to Bowers,

> Nowhere is the hegemony of technocratic consciousness more pronounced than in the federal and state bureaucracies that run the public school system (ibid, 540).

As suggested, these allegations pertain also to the present discussion, where the linear/progressive/time episteme is found underwriting the entire goal; where clear Liberal orthodoxy is expressed in the call for 'competence', 'independence' and 'productiv(ity)'; and in which the anthropocentric agenda is articulated in the goal's proposal that the appropriate destiny of children is to 'fulfil their potential and attaining their aspirations'. Decontextualized references to 'integrity' and 'joy', like the earlier use of excellence are suspect as it can be assumed that their inclusion is partly to encourage, what Esland called, 'public patronage'.

Liberal-technicism, leads to what Bowers calls, 'ecological imperialism':

> These qualities of mind - theoretical thought that is increasingly removed from the context it affects in which its technologies are applied, the fetish of efficiency that can be understood only in terms of measurable phenomena, the belief in the rational

> thought-technology nexus as inevitably progressive in nature, the secular-anthropocentric view of the world that treats the awareness of sanctity as a form of primitive superstition, and the concern with maximizing profits - are the root causes of ecological imperialism' (ibid :35)[30].

It might be useful to consider briefly how the goal could be refashioned if written from either a Marxist or Deep Ecology perspective. This should assist the researcher when attempting to arrive at a statement of intent which merges all three epistemologies.

A revised goal in line with Marxist ideology, would also exhort teachers to encourage pupils 'to function with...integrity as active and creative people in their society', but then not towards the fulfilment of their own potential or the attainment of their own aspirations. Radical Socialist pedagogy would contextualize these goals to reinforce the social, communal nature of the dialectic process.

The same goal written from a Deep Ecology point of view would portray the quintessential wo/man, not as a self-contained, independent individual with quantifiable potential, and achievable, philanthropic (but more probably egotistic) aspirations, but as open, self-transcending beings, co-existing with other life-forms. Deep Ecology would also differ from the Cartesian epistemology on the question of altruism. Although altruism might be implied in the goal under discussion, it is certainly not central. An Ecologically orientated goal, would focus on altruism through promoting an awareness of humankind's particularity, inter-dependence; accountability for thoughts, feelings, decisions, actions; responsibility towards family, friends, colleagues, strangers, other life forms.

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[30] Specific educational suggestions made by Bowers in response to this crisis will be discussed in chapter five.

In conclusion, Cartesian ideology reflected in the goal clashes with the Deep Ecology epistemology reflected in the guide, and does not take into account the broader South African social reality. An attempt will be made to address these shortcomings in 3.7.

3.6 Aims of the Four Area Enrichment Programme

The aims (Guide:2) are specific to sections that will be discussed in later chapters. Broadly speaking the aims are to encourage all schools to create structures through which their teachers might promote giftedness for all their pupils. Support is promised in terms of a gifted education network. Promise is also made of brain compatible and holistic education.

3.7 Towards an appropriate statement of intent

The above critical analysis has shown that neither the philosophical statement not goal, as presently formulated, reflects Deep Ecology nor takes into account the existential human condition or the true nature of 'changing [South African] society'. There are three major dangers associated with this dissonance. Firstly, the dissonance promotes epistemological schizophrenia through *wishing* certain effects but *willing* their opposites; secondly, a curriculum of educational programmes based on what Bateson termed a wrong epistemology would cause world-problems to persist as teachers continued reinforcing in children assumptions that humans are physically and psychologically separate from, and in competition with one another and nature; thirdly, a false epistemology is so subtly insidious that it is very difficult for teachers or parents to recognize, acknowledge and 'cure'.

If the Deep Ecology epistemology reflected in the guide is 'more correct' than the Cartesian and Socialist epistemologies, then the philosophy informing the goal should

be revised to bring it into line with Deep Ecology. This would ensure that the main thrust of the Deep Ecology epistemology as symbolized in the guide would not be dissipated nor subverted by an educational dispensation that subtly promoted egotism, competition, consumerism, civil strife or what Bowers terms, ecological imperialism, and Nietzsche, 'nihilism'.

A revised goal should not be seen as a so-called victory for one epistemology over others. This would be contrary to the essential spirit of Deep Ecology. Instead, a new goal should attempt to merge the respective strengths of the Cartesian, Socialist and Deep Ecology worlds into a more complex, less hostile symbolic epistemology.

Such a goal should aim at guiding teachers to inculcate in their pupils a sense of particularity, responsibility, an understanding of excellence and productivity. It should encourage teachers to develop ways of growing their pupils' competencies - not in order to propagate a status quo which would legitimize personal gain, human inequality and exploitation - but that would promote self-knowledge, wisdom, compassion and social concern. Such a reformulated goal might look like the following:

> The goal of the Four Area Curriculum Extension and Enrichment programme is for teachers to demonstrate through rich and diverse curricula, and varied educational experiences such as problem solving, project work, experiments, demonstrations, field trips, reflection etc. that life in all its manifestations: at the quantum level, in nature, in families, societies and the universe is inexorably interconnected and essentially benevolent. It is trusted that out of such an educational experience will be born in our children a reverence and compassion, and a need to find ways in which to develop and use their capacities and strengths to harmonize with, protect and beneficially influence events away from personal, social, global impoverishment towards enhancement for all

3.8 In conclusion

It was established that the Four Area Curriculum Extension and Enrichment guide to schools reflected the Deep Ecology epistemological world. The philosophical statement and goal, in contrast, reflected the Cartesian world. The Cartesian world-view was shown to be in conflict with Deep Ecology and inadequately formulated in terms of the broader South African social reality. It was recommended that the philosophy and goal be reformulated in such a way that social and ecological realities were acknowledged and addressed. Such a reformulated goal which fuses elements of the Cartesian, Socialist and Deep Ecology epistemologies was suggested.

CHAPTER FOUR

THE FOUR AREA DEFINITION OF GIFTEDNESS

4.1 Introduction

Traditionally, giftedness has been seen solely from within a Cartesian framework. This view is critically analyzed in the light of the Deep Ecology epistemology (4.2). In an attempt to widen the discussion on giftedness to show that intelligence is not an exclusive manifestation of the intellectual domain, the molecular world as depicted on pages three to nine of the guide, is described (4.4). This overview should serve to link the previous chapter and sections 4.5 to 4.9 where each of the five parameters which make up the Four Area definition of giftedness is discussed. The underlying assumption throughout the chapter is that the concept, giftedness, is reduced if viewed exclusively in terms of anthro- ethno- or egocentric perspectives; and that a full understanding of intelligence emerges only once its immanent nature in biological, social, ecological systems is acknowledged.

4.2 Critical analysis of the Cartesian conception of giftedness

The assumptions held by psychologists, psychometrists, educators, parents about the nature of intelligence largely determine how children are educated. In this section the traditional view of intelligence is critically analyzed.

The psychological and psychometric assumptions upon which intelligence tests are based are essentially Cartesian, namely: intelligence is a pre-existing substance or category residing within each human; this substance is quantifiable;

the intellectual ability of testees can be ranked according to their intelligence test scores; these scores are reasonably constant.

By adapting Gilbert Ryle's analysis of the Cartesian Mind-Body problem (1.3.3) it will be shown that these assumptions are fundamentally flawed. The argument does not deny intelligence. What it does try to do is to show that assuming intelligence to be a discrete, measurable entity within every human being is reductionist.

It was mentioned (1.3.1 and footnote number 3 in 2.3.1) that the Cartesian assumption that Mind was a separate substance within the Body created a set of problems which Descartes himself had not envisaged or was unable to solve. The same problems will be shown to haunt the psychometric view of intelligence.

If a testee were to score three out of ten for a hypothetical intelligence test while another scored nine out of ten for the same test, all that can be concluded is that the performance of the two testees on the particular test differed on that occasion. It becomes problematic however when teachers, psychologists or psychometrists attempt to explain that the pupils' respective performances are due to differences in their intelligences.

The assumption that intelligence is a measurable quality or substance which acts upon a physical body, rests upon what Ryle called a 'category error':

> When we describe X, which belongs to category A, by concepts belonging to category B we are guilty of what is known as a 'category error'. For instance when a child who has been watching a regiment march past says that he has seen the cannons, the tanks and soldiers, but not the regiment, he is confusing categories for he is looking for cannons, soldiers *and* a regiment instead of realizing that he is seeing the components of a regiment. He wants to be able to say of a regiment what he can say of a canon or a soldier, whereas they are fundamentally different - they belong to different categories. (Roux 1972:31)

If performance (category two) is a causal, material, physical, measurable category, can the same be said of intelligence (category one)? Can teachers, psychologists and psychometrists assume that intelligence is also a causal, material, physical, measurable entity? If the answer is 'yes' then *what* is intelligence, *where* is is situated, *how* does it interact with the body? Clearly, these questions are impossible to answer and make the humunculus view of giftedness appear absurd. This does not deny the existence of intelligence. At issue is not the fact or otherwise of intelligence but the way in which intelligence is conceived and, therefore, described.

Possibly the best way in which to illustrate the problematic nature of the humunculus view of intelligence is to refer to an illustration by Gilbert Ryle (reported in Roux 1972:62-65) to analyze what occurs when an audience watches a performing clown. Ryle noted that when the audience applauds the clown, what they are applauding is not the mental act but the physical observable action. He went on to argue that it would be impossible to photograph the skilful act separate from the clown: not because the skill is concealed somewhere or because 'skill', as something complete in itself, belongs to the clown but because skill and clown are synonymous during the moments when the crowd is being thrilled. To assume that the clown's skill is a discrete entity in itself, is according to Ryle a wrong way of describing what is actually taking place.

Likewise when psychometrists (believing they are photographers of the mind) assume that mental acts precede the action, and that these mental acts can be located in some suppository within the thinker and measured, they too are in error.

The error implicit in the imagist view of thinking, can be illustrated, according to Ryle, by considering whether the brain makes a mental image of a smell somewhere inside itself

before smelling occurs; or a mental reproduction of the sound before hearing occurs. Surely not; smelling and hearing simply occur. Analagously, it would seem an unusual undertaking to measure Mother Theresa's Compassion Quotient and compare it, for example, with Saddam Hussein's, because the undertaking would assume that compassion is quantifiable, is situated somewhere inside each of the testees, is a constant: all of which are immediately recognized as a wrong way of viewing compassion. This is not to deny that Mother Therea, generally speaking, personifies compassion while Saddam Hussein, generally speaking, acts far less compassionately.

A way around the dilemma is to conceive of and describe giftedness differently. Such a description would rest on an appropriate view of the human condition (2.3.3). To contextualize this statement, it will be necessary to refer again to Ryle's clown.

Ryle pointed out that mental images, skill, clown were not discrete categories; that clown and skill could not be separated from one another. There is a further dimension, namely the members in the audience who appreciate the skill and therefore applaud. They too share in and contribute to the experience in a very real way. This means that what is actually taking place is the particularization of talent through the shared experience of clown and audience. This being so, means that talent, skill, giftedness can be seen in an entirely new way: not as a discrete something which someone possesses, but as a coming-into-being through participation as particularized in a situation.

This permits a view of intelligence as something experienced, expressed within and between humans as part of their being-in-the-world. The body is therefore not seen as separate from intelligence, an instrument of intelligence. Nor can there be spoken of X being more intelligent than Y. Instead, intelligence is incarnated (to borrow Marcel's term)

through human interaction in the world. It is the expression of what Heidegger called, authenticity.

It can be concluded from the above discussion that viewing intelligence as a discrete entity inside each human being, a substance akin to Ryle's, 'ghost in the machine' (1.3.3), creates more problems than the description solves. Intelligence is not a substance inside the person which makes him/er act in a certain way; rather it is a way of describing coming-into-being. It is an immanent quality, which, like love, joy, humility expresses itself in certain circumstances, and cannot be separated from the person who is feeling, acting or thinking appropriately, skilfully, creatively.

It is for the forementioned reasons that pupils, teachers, parents, industrialists should be wary of laying too great a store by intelligence quotients, because intelligence tests cannot test intelligence. Because when a psychometrist develops an intelligence test all s/he is doing is s/he:

> ...makes up questions which he *thinks* tests what he *thinks* is intelligence. (Simon 1977:49)

The tests themselves then classify people:

> ...according to their success in solving problems which may or may not be tests of intelligence...they are not classified according to their ability in dealing with the problems of real life that call for intelligence. (Lipman: 1976:11)

Intelligence tests can therefore not be accurate predictors of ability. McClellan (1976:53), for example, challenged Terman's findings that there was a strong correlation between intelligence scores and later success:

> Terman's studies did *not* demonstrate unequivocally that it is the kind of ability measured by the intelligence tests that is responsible for (ie, causes) the greater success of the high-IQ children. Terman's studies *may* show only that the rich and powerful have more opportunities, and therefore do better in life.

When, according to McClellan (1976:55-6), intelligence tests are shown to have validity then the question needs to be asked, valid for what?

> Certainly they are valid for predicting who will get ahead in a number of prestige jobs where credentials are important. So is white skin: it too is a valid predictor of job success in prestige jobs. But no one would argue that white skin per se is an ability factor. Lots of the celebrated correlations between so-called intelligence test scores and success can lay no greater claim to representing an ability factor.
>
> Valid for predicting success in school? Certainly, because school success depends on taking similar types of tests.

It is therefore clearly dangerous to label pupils in the light of intelligence tests. The question of labelling has further ramifications. Esland (1971), for example, was highly critical of the way in which psychological definitions of reality have permeated education. Educational labels such as ability, behaviour, motivation, general attitude, suitability for employment, which are, according to Esland, retracable to Psychology, are reductionist as they legitimize a view of children which permits teachers to avoid having to ask questions about the society within which pupils have to operate and adjust.

Popkewitz (1984:190), made the point that an educational label is a social, not a scientific construct :

> To label someone as disabled, gifted, talented, or presenting a disciplinary problem is to bring to bear social values and socially cued perceptions about 'good' and 'evil'...Gifted or disabled are not categories rooted in science *per se* but definitions arrived at through cultural negotiations among competing interests in schooling and society.

Esland (1971) believed that a system in which pupils are assessed, tagged and then streamed sensitizes teachers to objectivistic labels (I.Q. scores, intellectual status, marks

and symbols) but desensitizes teachers to complexities of the intersubjective processes. He claimed that pupils can only survive their education if they succeed in liquidating those areas of their experience and understanding that fail to conform with the official school-view of reality: a process which is similar to what Berger and Luckman term 'nihilation' (Esland 1977).

In conclusion therefore it can be said that the way in which intelligence is conceived and described is, as with the description of mind, crucially important. To describe intelligence or mind as a discrete entity harbouring within humans creates a logical, philosophical and moral dilemma. This can only be resolved or, at least, circumvented once intelligence is understood as an immanent quality manifesting through people in a particular context, not a description of something inside which makes him/er act in a certain way.

In the following section the Four Area definition of giftedness which was introduced in 1.7 will be summarized.

4.3 Four Area definition of giftedness

Broad parameters within which the concept giftedness is to be understood are summarized on page three of the guide. The point is made in the definition that giftedness is in fact an extremely nebulous concept and means different things to different people:

> ...to the Yanomamo Indians...giftedness is possession of the skills of a great hunter; to para-psychologists, it is psychic ability; to Suzuki violin teachers, it is musical talent..' (Myers and Ridle 1981)

In response, the guide offers a broad definition of giftedness in terms of five variables (1.6) which include accepting that *all* pupils are gifted; that giftedness usually manifests in one or more *specific* domains; that giftedness is a *relative* concept; that it is a *potential* that can be nurtured; and,

finally, that we should avoid speaking of a 'gifted child', but focus on what Renzulli (1986) termed 'gifted *behaviour*'. In the next section, the biological world depicted in the guide will be explored in greater detail in order to show intelligence operates at molecular, cellular, hormonal, cerebral levels.

An attempt has been made in the next section to give a descriptive overview of the atomic and molecular worlds represented on pages three to nine of the Four Area guide to symbolize Deep Ecology. This overview is necessary as it will concretize the Deep Ecology symbolic world illustrated in the guide; it will explain what bearing the illustrations have on intelligence; thirdly, it will show that intelligence is not grounded in intellect but manifests also at the molecular level.

4.4 Biological background to an understanding of giftedness.

Quantum reality and the complex world of biogenetics is reproduced symbolically in the guide from pages three to five. Even a cursory overview of the genetic and molecular underpinnings of humankind should communicate that an understanding of giftedness is trivialized if humans fail to acknowledge that the quality called intelligence can be seen operating at molecular levels, as much as it is celebrated in its cerebral and social manifestations. The following résumé should provide the necessary context within which the empirical, neurological references discussed in 4.6 and 4.7 might be understood.

The diagrams on pages three to five of the guide illustrate the fact that all living systems share the same atoms and a common molecular pool based on two classes of molecules: nucleic acids, the essential constituents of the double helix which carry the code for building deoxyribonucleic acid (DNA); and the approximately twenty amino acids of protein synthesized through a complicated

process involving ribonucleic acid, or RNA (Eccles 1984; Darnell 1985).

The Nobel laureate, Walter Gilbert (reported in Jaroff 1989:63), called the genome, 'the Holy Grail of biology' . The genome, which is the complete set of genetic instructions for making the human organism, is written in the chromosomal language of DNA. A DNA molecule has been illustrated in the guide on page four. DNA is found in each nucleus of the 100 trillion cells that make up the human body, illustrated in the guide on page five. DNA consists of a double helix, each rung comprising a base pair built out of 2,5 billion different combinations of the four bases, adenine-thymine, guanine-cytosine. Each completed DNA 'sentence' is called a gene. The sequence of these bases determines the order in which amino acids are assembled to form proteins. Although all cells in an individual organism contain the same DNA, not all genes are active in every cell. (Darnell 1985; Jaroff 1989; Weinberg 1985)

DNA operates as a message from the past:

> ...the DNA in a person alive at this moment is the product of a sequence of DNA molecules which goes back more than a million years. (Beckett 1977:19)

This means that the DNA contained in each human cell is a shuffled replica of the DNA of all the foreparents back into time. Genes, therefore, do not grow senile and are unlikely to die even if a million years old. Dawkins (1981:142), pointed out that DNA is in fact using the human body as a temporary abode and that the genes:

> ...are the primary policy-makers; brains are the executives.

Genes affect each another and are affected by the environment (Beckett 1977:245). Genes, for example, which could produce what is recognized as high intelligence may never develop unless nurtured in an intellectually stimulating environment (4.6).

The brain, illustrated in the guide from pages six to nine, is a complicated, intricately woven tissue composed of highly specialized cells which, according to Hubel (1977:39) is probably unique in the universe. According to Hubel (ibid:130) the brain can be:

> ...viewed as a kind of invention by evolution, the cerebral cortex must be one of the great success stories in the history of all living things. In vertebrates lower than mammals the cerebral cortex is minuscule, if it can be said to exist at all. Suddenly impressive in the lowest mammals, it begins to dominate the brain in carnivores, and it increases explosively in primates; in man it completely envelops the rest of the brain, tending to obscure the other parts...A mouse without a cortex appears fairly normal, at least to casual inspection; a man without a cortex is almost a vegetable, speechless, sightless, senseless.

The nervous system originates as a flat sheet of cells on the dorsal surface of the developing embryo. The tissue then folds into an elongated hollow structure (illustrated in the guide on page six) that swells at the head area into three sections (page seven) that will eventually grow into the fore-, mid- and hindbrain. Neurons must be generated in the developing brain at an average rate of more than 250 000 per minute (page eight). The developing brain goes through eight stages that include the formation of dendritic connections between neurons, the selective death of certain cells, the elimination of some of the connections that were initially formed, and the stabilization of others. (Cowan 1979)

One neuron is generally fed by up to thousands of other neurons while it, in turn, feeds up to thousands more. This means that there are an estimated 10^{14} synapses in the brain. Neurons not only transmit impulses from one place to another, they also constantly evaluate all of the signals reaching them from other cells and express the result in their own rate of firing. (Hubel 1977)

In terms of general energy metabolism, the developed brain illustrated on page nine is the most active consumer of

energy of all body organs. This is to maintain the ionic gradients across the neuronal membrane on which the conduction of impulses in the billions of brain neurons depend, and because there is no respite whether day or night. Because neurons in the brain are also exceedingly sensitive and can be disrupted by toxic substances in the blood stream a blood-brain barrier protects it. Furthermore, they can utilize only blood sugar, unlike other body organs that have the ability to utilize a variety of alternative foods. Other tissues are able to function for short periods without oxygen; whereas depriving the brain of oxygen leads to a loss of consciousness within ten seconds and permanent damage. (Iversen 1979)

Cowan (1979:117) commented:

> Considering the complexity of the developmental mechanisms involved, it is hardly surprising that errors are found. What is surprising is that they appear infrequently and that they are often effectively eliminated.

Brain activity is only one level of action in the human organism. Division of labour means that the manifold functions of assimilating nutrients, movement, metabolism, synthesis of new molecules, reproduction, etc., need to be co-ordinated in order that the human organism can function as a whole. This requires communication between cells, as also within cells. The two primary ways in which cells 'talk' to one another is by means of hormonal or neuronal chemical messengers. When a molecular receptor on the surface of a cell detects an incoming messenger its reaction depends upon a series of proteins that act in a sequential chain to trigger secondary messengers (small molecules or ions within the cell's cytoplasm), which ultimately propagates a signal throughout the cell to regulate some or other process such as secretion, contraction, metabolism or growth. (Berridge 1985; Snyder 1985).

The total picture becomes awesome when it is considered that the brain consists of billions of neurons, all

functioning oblivious to the overall plan; while, simultaneously, the higher level, holistic mental world of thoughts, feelings, emotions, is equally oblivious to the brain cells. Humans think being totally unaware of any help from any of their neurons. (Davies 1983:84)

What can be suggested by the foregoing review of empirical research is that 'intelligence' is a function of the molecular, cellular and organic levels. This perspective is in accordance with Deep Ecology and should serve as a context for the further discussion of each of the five parameters claimed in the guide to constitute giftedness.

In 4.5 the statement in the Four Area definition of giftedness that all pupils are gifted will be discussed.

4.5 All pupils are gifted

A questionnaire (Gifted Education Co-ordinator, Cape Town 1988b) was sent to principals and co-ordinators in order to establish how they viewed the Four Area definition of giftedness. Although, generally speaking, the majority of respondents agreed with the defintion of giftedness, the one statement that revealed the most diversity of responses was the statement, 'all children are gifted'. 58% agreed with the statement, 19% were neutral while 23% disagreed (refer figure 4.1 and Addendum B). Although a reasonable number of respondents (33 or 58%) agreed with the statement that all children are gifted, it does seem to indicate that a significant number of educationists (χ^2 = 12,5 df = 2 p<,01) who were responsible, either directly or indirectly for the gifted education programme in their schools held to the conventional view and therefore have difficulty accepting that all pupils are gifted.

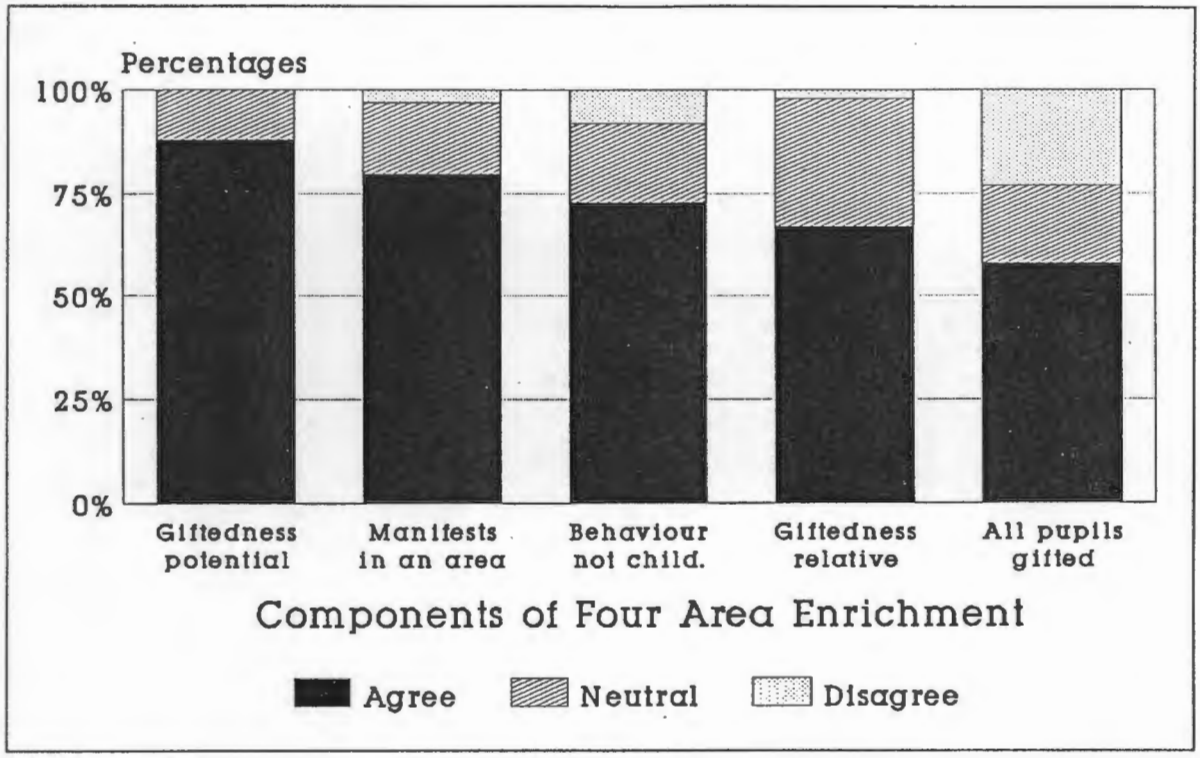

Figure 4.1 Responses of principals and co-orinators to each component of the Four Area definition of giftedness (n = 57)

The belief that giftedness is a variable present in only certain children, is based upon the Cartesian 'homunculus' view of giftedness which assumes that giftedness is a naturalistic quality pre-existing only in certain people. This view of wo/man as individualistic, atomistic differs from the Socialist, collectivist view of humankind. It also overlooks the theory that human values, norms, beliefs, institutions, definitions of giftedness - in other words their taken-for-granted reality - is socially constructed. Thirdly, it does not take into account the Deep Ecology epistemology which holds that giftedness is immanent in quantum, molecular, global and cosmological hierarchies.

A satisfactory synthesis of these three variables (namely, that giftedness is a collective, socially constructed immanent quality) would require deeper analysis than the present study allows. However a brief overview is necessary

to delineate the issues involved so as to underscore why all children should be acknowledged as gifted.

It was noted (1.2., 1.4., 3.4) that despite generally held assumptions that humans operate as independent beings, their inner world or 'self' is largely a product of their society. This world is not independent of their cultural-historical existence. In fact Anne Brown, J. Hugo and D. Perkins (reported in Bruner 1987:67) demonstrated that an anlage of metacognition is present in infants as early as eighteen months. Bruner (1987:92) hypothesized that 'self' emerges in humans because their brains are biologically predisposed to appreciate other minds:

> It would seem a warranted conclusion, then, that our "smooth" and early transactions and the regulatory self that executes them, starting as a biological readiness based upon a primitive appreciation of other minds, is then reinforced and enriched by the calibrational powers that language bestows, is given a larger-scale map on which to operate by the culture in which transactions take place, and ends by being a reflection of the history of that culture as that history is contained in the culture's images, narratives, and tool kit.

A dynamic inseparability exists therefore between the 'individual' and the collective (2.4). Humans can therefore not claim to be independent individuals detached from society. Acknowledging their collectivity together with their uniqueness enables humans to consider the suggestion that giftedness is itself a social construct.

Csikszentmihalyi and Robinson (1986:265-6), rejected the naturalistic view that giftedness is:

> ...an objective fact, something you either have or don't have, like green eyes or a mole on your nose

in favour of an attributional view, that giftedness is jointly constituted by social expectations and individual abilities within socially constructed domains and fields (ibid 266):

> ...by 'domain' we mean a culturally structured pattern of opportunity for action, requiring a distinctive set of sensorimotor and cognitive skills - in short, a symbolic system such as music, mathematics, or athletics - we may designate by 'field' the social organization of a domain. A field includes all the statuses pertinent to the domain; it specifies the habitual patterns of behaviour - or roles - expected from persons who occupy the various statuses. (ibid 278-9)

They claimed that societies have constructed certain well-defined domains with clearly elaborated sets of criteria about what constitutes excellence. They pointed out that it is reasonably easy for experts within specific domains, to identify potentially gifted performers. However, in those domains where there is no clear-cut socially negotiated consensus about what constitutes excellence, humankind's ability to identify and nurture giftedness becomes problematic. For example:

> It is easy to ascertain that someone is the 14th best tennis player in the world, or someone else the 6th ranked mathematician in his age group. But who is the best mother? Or the 5th most honest politician? (ibid 267)

They also asserted that capacities within one domain are not necessarily transferable or meaningful in other domains thus warning that precision in measurement 'is not tantamount to significance or value':

> The IQ refers to a peculiar process adapted to its peculiar environment - the Western academic bureaucracy - just as skill in chess is a mental process adapted to the particular setting of the chess game. A superior IQ or a high chess ranking indicates the ability to function exceptionally well within the rules of the appropriate social system. It takes a bit of magical thinking to believe these abilities have any value beyond the school or tournament. (ibid 266)

Humankind's ontological inseparability suggested in the guide, might be illustrated by the theory formulated by Dawkins

(1981:143), that memes (memories, tunes, ideas, catch phrases, ways of doing things) have largely superseded genes as the new replicators:

> When you plant a fertile meme in my mind, you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the same way that a virus may parasitize the genetic mechanism of a host cell.

Satellite communication, computer networks, the printed word all facilitate the effortless propagation of memes and give birth to what Pierre Teilhard de Chardin called the 'Noosphere' (3.3) or Lance Morrow (1989:39) called, 'Electronic worldmind'.

Research by Kandel lends empirical support to Dawkins' suggestions when he extrapolated (1979:68) that the action of the neuronal machinery in one person's brain is capable of having a direct and perhaps long-lasting effect on the modifiable synaptic connections in the brain of another person, even during simple social experiences, as when two people speak with one another.

The currently perceivable shift of humanity from the tribal to the global appears to endorse the belief that humankind is in certain respects essentially one. This shift might inevitably require humans to redefine themselves and giftedness in terms, not of the individual, but of the collective. Celebrating their commonality should enhance the understanding of life's systems and hierarchies. Furthermore, it might be discovered that individuals, like separate notes of a Beethoven symphony, are meaningless at the componential level and that meaning only emerges at the collective level of the structure (Davies 1983:62).

In this and the preceding sections many variables which effectively restrain researchers from making categorical decisions about who is or who is not gifted were discussed. These have included the acknowledgement that humans are in essence one: for they share the same atoms and molecules at

the quantum and biological levels; the same thought patterns at the social level; and, potentially, a remarkable level of purpose and intelligence at the global level. Secondly, it was shown that giftedness is not a naturalistic pre-existing quality but the consequence of pragmatic social consensus manifesting in specific domains. This being so it would be premature for educationists to categorize children as gifted based on a superficial and disjointed understanding about how intelligence operates in the cellular, personal, social and global spheres. More humane, scientific, and reasonable therefore is to conclude that all children are gifted:

> No objective criterion "out there" will reveal how many gifted children there are. The collective as a whole must make up its mind where to draw the line. One can argue that any child who can move, see, speak, and think is gifted - after all, how rare such skills are in the empty vastness of the galaxies! And if we reflect on what small proportion of these gifts are developed in the schools or used by the culture, we realize what an enormous task it is to help unfold the basic giftedness of our normal children. (Csikszentmihalyi and Robinson (1986:266)

4.6 Giftedness is a relative term

Much of what was said in the previous section concerning the social construction of giftedness is equally relevant to this aspect of the definition.

Csikszentmihalyi and Robinson (1986) rejected the assumption that giftedness is a naturalistic stable characteristic that remains with the person throughout life. They maintained instead that giftedness is a dynamic quality dependent upon cognitive and psychological changes within the individual, relative to the shifting requirements harboured in domains and fields (ibid 271).

For example, they showed how the career of a particularly promising young musician develops or fails relative to the conflicting emotional and psychological demands of adolescence and the practical demands of young adulthood.

They also showed that giftedness is relative to cognitive development. Schools, for example, reward problem-solvers while problem-finders are rewarded in later life:

> The skill needed to solve problems appear to be of an entirely different order from the one necessary to discover problems; hence predictions based on the former may have little bearing on later outcomes... Dropouts from doctoral programs are often brilliant problem-solvers who all through their academic careers were rewarded for their cognitive skills; confronted for the first time with the tasks of formulating a problem of their own, however, they became paralysed - while candidates far less promising on traditional measures succeed in discovering a worthwhile thesis. (ibid 274-75)

Thirdly, they defined giftedness in relation to the changing requirements of the domain. They cited many examples including Werner von Braun who failed ninth-grade algebra yet developed the principles for rocket propulsion, and Einstein, who as a teenager, failed his admission examinations at the Zurich Polytechnic.

Fourthly, shifting requirements of the various fields such as art and the basic sciences also relativize giftedness. The school incentive system for example is extrinsically, while genuine creative performance relies on intrinsic motivation. Accordingly, children who do well at school seem to have difficulty achieving the same level of success in their chosen field after graduation:

> Therefore, one might conclude that a child who is exceptionally well adapted to the social system of the school and excels therein is *ipso facto* less likely to be well adapted to the requirements of a creative role, especially in fields like art, literature, and basic sciences, where extrinsic rewards might be arbitrary, and problem finding is at a premium (ibid 280)

4.7 Giftedness is a potential

The guide:3 stated that 'giftedness is a potential that can be nurtured'. This component of the working definition gained

the most significant support among respondents (refer figure 4.1 and Addendum B), with fifty (88%) agreeing with the statement, ten (12%) expressing neutrality, and no dissenters.

Although giftedness as a potential can be demonstrated in many contexts (Gruber 1986:248; Leslie Hart 1983; Ken Jubber 1988; Karl Sagan 1978 and others), this section will focus exclusively on empirical evidence that suggests that an enriched environment enhances the brain's plasticity, and therefore the organism's potential.

It was noted in looking at the developing brain (4.4) that the final size of the neuronal population is established in two stages. An earlier stage where a large number of neurons are generated, and a later stage, in which the number of neurons is modified to match the size of the field they innervate:

> It is commonly assumed that the limiting factor determining the final number of cells is the number of functional contacts available to the axons of the developing neurons which depends upon the environment within which the organism functions. (W. Maxwell Cowan 1979:17)

A striking increase in the mass and thickness of the Cerebral Cortex, as well as accompanying changes in brain chemistry (Mark Rosenzweig, reported in Sagan 1978:45) were observed in rats nurtured in an enriched, as opposed to an impoverished environment.

A similar result, this time in Area 17 of the visual cortex of a kitten was noted by Nobel laureates, David Hubel and Torsten Wiesel (1979). These two researchers sutured one eye of a kitten during the first months after birth and discovered that the neurons in Area 17 of the visual cortex that normally responded to the stimulation of both eyes, dropped markedly, while the visually responsive neurons in Area 17 were nearly all monocular and remained so. This meant that the cat remained blind in the deprived eye for the rest of its life. Further investigation revealed that the neurons in the retina and Lateral Geniculate Nucleus (LGN) had not

been affected, and continued to respond to light, normally. This led them to conclude that the visual pathways were genetically predetermined, but that the healthy development of the neurons in Area 17 were dependent upon appropriate visual stimuli during a critical period from the second to the fourth week.

Chiye Aoki and Philip Siekevitz (1988), working with Simon D. LeVay found that the ocular dominance columns in Area 17 in Lamina IV of normal monkeys were equal in width. In monocularly deprived monkeys, however, the columns for the active eye were markedly expanded, while those for the deprived eye were reduced. These findings suggested that monocular deprivation in animals leads to,

> ...synaptic contacts between axons from the LGN and neurons in lamina IV develop(ing) in favour of the functionally active visual pathway. The phenomenon resembles the development of muscles that are exercised and the atrophy of muscles that are idle. The peculiarity here, however, is that the activity-dependent development occurs within a narrow window of time - the critical period. (ibid 37)

Aoki and Siekevitz (1988:40 - 2) proposed that the molecule Microtubule-associated Proteins, or MAP2 might be responsible for promoting plasticity in the brain by, inter alia, helping to create more dendritic branches that facilitate communication between neurons, and by controlling the transport and anchoring of molecules (such as hormones and neurotransmitters) necessary for synaptic transmission and growth.

Although the above research provides strong evidence that learning takes place in the brain of vertebrates by modifying connections among a fixed number of neurons, work carried out by Steven Goldman, Gail Burd, John Pakon and Fernando Nottebohm showed however that neurogenesis occurs in canaries, thus prompting speculation that neurogenesis might also be possible in other species including humans. Their research found that every season existing neurons in the Higher Vocal

Centre (HVC) of the canary's brain are replaced by new-born cells from outside the HVC. Nottebohm (1989:61) concluded that although there is no evidence of neurogenesis occurring in primates, it may be possible to induce.

> After all, the same genes that orchestrate neurogenesis in the young, developing brain should be present in the brain cells of an adult. The challenge is to identify the genes and to activate them.

Although research is in its infancy it does suggest that the brain's potential might be further enhanced through neurogenesis.

Proactive, flexible, empathetic, creative, intelligent behaviour is traceable inter alia to the brain and, in particular, the Cerebral Cortex. Research seems to suggest that exposing an organism to an enriched environment stimulates brain plasticity which in turn promotes cerebral intelligence, thus supporting the claim that giftedness is a potential.

4.8 Giftedness usually manifests itself in a specific area

Although there is evidence of brain specificity (Geschwind 1979), the total picture is far from clear.

Specificity is suggested, for example, by the fact that there is not one big wiring net for the brain but a system whereby the wiring is broken into many smaller subsets, some in parallel, others arranged serially (Crick 1979). There is also evidence that the nero-transmitters in the brain (monoamines, amino acids, the second messenger system and the neuropeptides) are not distributed randomly throughout the brain tissue but are highly localized in discrete pathways and centres (Iversen 1979:122):

> ... [the] superimposition of these diverse chemically coded systems on the neuronal circuitry endows the brain with an extra dimension of modulation and specificity. (ibid 118)

There is also evidence of abnormal cellular architecture in the brains of people who suffer disabilities, for example dyslexia (Geschwind 1979:166). This supports suggestions that certain neural regions of the brain control specific functions.

Research by Nobel prizewinner, Roger Sperry, on split-brain epileptic patients demonstrated lateralization in the human brain (Durden-Smith and de Simone 1983:52). Sperry's findings encouraged attempts to identify areas of specificity within the brain, from which various theories of multiple intelligences were born. On page eleven of the guide, reference is made to Howard Gardner's work in this regard. Gardner (1983) hypothesized seven specific intelligences each localized in one or more areas of the brain. These include: linguistic, musical, logical, mathematical, spatial, body-kinaesthetic and personal intelligences.

Although theories of multiple intelligences specifically traceable to discrete areas in the brain make for interesting speculation it should be borne in mind that attempts to 'explain' the brain in terms of socio-cultural proclivities run the danger of being reductionist:

> One...is attempted to assign a function to each district (of the brain), as if the entire brain were something like a radio. Yet the essence of the central nervous system - the brain and the spinal cord - is a channelling of incoming sensory information to a multiplicity of structures and a convergence of information on the neurons that animate the effector tissues of the body: the muscles and the glands. The overall system therefore assumes properties beyond those to be discovered in a mere set of modules. (Nauta and Feirtag 1979:78)

Steinberg (Trotter 1986), proposed an alternative theory of multiple intelligences not based upon brain physiology. Steinberg, hypothesized three different qualities of intelligence that manifest as a blend of: componential (analytic thinking); experiential (insightful or creative

thinking), and contextual (practical, down-to-earth, survival thinking).

It is, however, erroneous to assume that Gardner and Sternberg's intelligences preexisted. More accurate to acknowledge that society (in all its permutations) provides multiple opportunities from which specific giftedness can be constructed. The social construction of, for example, empathy and altruism was demonstrated by M. Yarrow and C Waxler (reported in Dunn ibid) and J. Dunn (1987), who found that mothers who communicated with their children from a very early age and who consistently drew attention to the distress in others had more friendly, concerned and altruistic children than those parents who failed to discuss feeling states.

In conclusion there is both biological and sociological evidence to support the notion that giftedness does often manifest in a specific way. Although it is likewise clear that much research still needs carrying out.

4.9 Focus on gifted behaviour

Credit is given on page three in the guide to Joseph Renzulli (1981) for the final aspect of the working definition:

> ...we should avoid speaking of a *gifted* pupil, but rather acknowledge that certain people, in certain circumstances, and at certain times...when the three areas: intelligence, creativity and task commitment are in alignment, and in focus - elicit, what Renzulli would term, "gifted behaviour''.

Renzulli's concept of giftedness is a clear move away from the humunculus view of giftedness and an acknowledgement that giftedness is a product of behaviour particularized within a situation (4.2). A number of theorists agree with Renzulli regarding his emphasis on labelling behaviour and not the child.

Keating (1989) for example suggested that it would be more correct to view children in the light of their respective performances than as a categorically distinct group labelled

'gifted'. He recommended that this group should be referred to as 'developmentally advanced' rather than 'gifted'.

Tannenbaum (1986) felt that giftedness should be reserved for those who have demonstrated exceptional abilities and that children should therefore be regarded as potentially rather than manifestly gifted.

Brown (1984), however, sounded a warning by pointing out that as not all children perform equally well within a school setting, it might be problematic for teachers to focus entirely on performance to the neglect of alternative signs of potential.

4.10 In conclusion

A close analysis revealed the shortcomings of the traditional Cartesian, homunculus view that giftedness was a quantifiable substance that people possess in varying degrees. The false assumption upon which intelligence tests and psychological labels are based was also highlighted. Instead, it was pointed out that intelligence can be seen manifesting in many different contexts including social and biological. Research in support of each component of the Four Area definition of giftedness was presented, thus showing the definition to be open-ended, dynamic, egalitarian. This means that the definition could serve as a sound basis upon which to build a model for the promotion of giftedness in all children.

CHAPTER FIVE

CRITICAL EVALUATION OF THE AREA ONE ENRICHMENT PROGRAMME

5.1 Introduction

Based upon the Four Area definition that all pupils are gifted, the Area One programme was devised to provide basic skills' enrichment for all pupils. In this chapter the rationale for the skills' programme is discussed (5.2). Details of the in-service training programme conducted for all primary and high schools in the Cape Town region from 1987 to 1988 is outlined, and the programme's success evaluated (5.3). Thereafter, the content of the programme is assessed and shown, in certain respects, to be inadequate (5.4). Suggestions for a refined integrated Area One programme are made (5.5).

5.2 Area One Enrichment

In the initial years of the gifted education programme, creative and problem solving skills were taught only to small, withdrawal, enrichment groups of 'gifted' pupils. During the departmental high school in-service training course in 1985 it was recommended that thinking skills be taught to all pupils. Area One enrichment (Guide:6-8) formalized this principle by making provision for a basic skills' development programme for all pupils. The rationale for the programme was to provide all pupils with what were seen as skills required for gifted behaviour.

Area One provision comprised of a yearlong skills' development course. Pupils were to be taught a specific skill for one period a week. These included creative, problem solving, research, and life skills. If schools were unable to

timetable a specific Area One period it was recommended that the skills be incorporated into appropriate subject teaching. For example problem solving, research and creative skills could be included in the First Language programme; life skills into Guidance or Youth Preparedness periods. Schools were warned against teaching the skills in isolation and strongly urged to integrate the skills into normal class teaching.

John Naisbitt and Patricia Aburdene (1985:12), strongly recommended skills' training in order to prepare pupils for 'the new information society':

> There is no doubt that students need to learn to read, write and do math. The point is that to stop there is to equip them only with skills their grandparents had - which is like giving them a wrench to fix a computer...Alongside the three Rs, it is time to give our young people a little thinking, learning, creating - the high-tech/high-touch skills on which the new information society and the new corporation need to be built. (ibid 121)

Paul Torrance's model (1979) formed the basis of the creativity course which consisted, inter alia, of activities aimed at exercising originality, fluency, elaboration, open-endedness. The workshops looked at creativity in literature and drama and included discussion, role-playing and the exploration of intuition, spontaneity and myth (Käsner 1987; O'Brein 1987; Wood 1987). The thinking skills' programme was based upon Edward De Bono's CoRT 1 and CoRT 2 programmes (1980) as also mathematical problem solving (Barry and Kühle 1987). The life skills' course (Baker 1987; Cliff 1987) was aimed at self exploration, dealing with emotions and inter-communication skills. The research skills' course (Bottaro 1987; Jones 1987; Mentz 1988) focused primarily on skills required for finding and processing different forms of information.

Curricula for standards three and six were developed and presented by the laboratory schools' in-service training committees under the convenership of Alixe Lowenherz for the

Senior Primary phase, and Ken Barris and Anne Schlebusch for the High School Phase (Guide:13).

School principals were visited by the regional co-ordinator during the second half of 1986 to familiarize them with the guide. Each principal was asked to send the gifted education co-ordinator and any other staff members to attend the ongoing in-service training course which was to be held throughout 1987. Schools were asked to timetable specific periods for skills' training, and to run a concurrent staff development programme during which the co-ordinator was to acquaint the staff with the skills so that these might be integrated into all lessons.

Notices were sent to schools advising them of the orientation day on 2 February 1987 and of the 13 primary and 13 high school afternoon workshop sessions spread throughout the year.

5.3 Area One In-service Training Programme 1987-88

46 out 65 primary, and 32 out of 33 high schools attended the initial full day orientation meeting on 2 February 1987. The day consisted of plenary addresses from the Deputy Director of Education, Dr F.L. Knoetze who highlighted the need to educate pupils for the twenty first century; Dr C.R. Meintjes who spoke about gifted education in the coming decade; the Chief Superintendent of Education, Mr J.E. Goss who addressed the problems of innovation within a school setting and an introduction to brain compatible education by Ms E. Maxwell, Mr J van Zyl and the researcher. Concurrent sessions introduced primary schools to the De Bono CoRT programme (Ms L. Webb) and research skills (Ms B. Jones); while the Provincial Chairperson of the Laboratory Schools' Committee, Dr J. Gibbon addressed the high school section on leadership skills' development, followed by an introduction to Futuristics (Messrs K. Barris 1987 and D. Wood 1987).

Mss E. Baker., H. Barry., B. Jones., L. Kühle., E. Smith., Messrs A van den Berg and A. Weir were responsible for the ongoing primary school programme. Mss J. Bottaro., V. Käsner., A. Schlebusch and Messrs A. Cliff., G. Hawtrey., G. Kieswetter., A. Wood presented the high school programme.

Attendance of the ongoing follow-up programme varied, however. Nine primary and five high schools consistently attended the entire programme (Gifted Education Co-ordinator 1987a). Per capita attendance of each workshop is indicated in table 5.1.

The annual feedback questionnaire to all schools (ibid) indicated how many staff development seminars had been held in schools, as also the number of pupils who had been taught the Area One skills (table 5.1.) The reliability of the data is, however, questionable (Gifted Education Co-ordinator 1987b) as many more schools than actually attended the in-service programme stated that they had run Area One staff development programmes, and were presenting Area One skills to their pupils. Possible explanations for this discrepancy might be that:

- certain schools were running their own programmes;
- a liberal interpretation of what constituted creative, thinking, life and research skills;
- distorted feedback statistics intentionally or unintentionally to give a false impression of the school's enrichment programme.

It can, however, be accepted that certain Area One lessons were being taught by one or more teachers at approximately 9 primary and 5 high schools. Furthermore, the number of staff development modules reportedly conducted throughout the year is evidence that certain of the Area One skills were being integrated into the normal subject curriculum.

REGIONAL AREA ONE (A1) IN-SERVICE TRAINING PROGRAMME						
Item	Res	Life	Think	Creat	Entre	Fut
Teachers attending in-service programme	27	23	34	30		
	54	42	61	21	5	18
Schools indicating they teach A1 components	32	35	39	37		
	26	23	29	36	3	4
A1 Staff dev. workshops presented	41	63	101	87		
	65	22	70	68	2	0
Pupils exposed to components of the A1 programme	3930	5488	4580	4028		
	5673	3480	35656	6276	335	523

1987 Questionnaire 1988 Questionnaire

Table 5.1 Involvement in, and influence of the Area One Research, Life, Thinking, Creative, Entrepreneurial and Futuristics Skills' In-service Programmes, based upon the 1987 and 1988 annual feedback questionnaires from primary and high schools in the Cape Town region (1988 research and life skills' statistics refer only to primary schools; entrepreneurial and futuristics, to high schools).

At the debriefing session with the two conveners held in August 1987, reasons for the marked fall-off in participation was discussed (Cape Town Teachers' Centre 1987). Among the points raised was that the orientation on the 2 February was said to have done harm because certain speakers had not been adequately briefed and had misjudged their audience. The year-long in-service programme was criticised for being dilatory and for not sustaining a consistently high standard. Another point was that the majority of high school teachers, 'are fiercely protective of their spare time'. It was noted that some of the larger high schools who had attended the full day in-service programme launch on the 2 February 1987 had not attended the follow-on course. A possible explanation

mentioned was that these schools already had established programmes.

Other suggestions to improve the in-service programme were mentioned in a letter to the researcher (Barris 21-09-87). Barris felt that there was a need for improving the programme content by enhancing the 'immediacy/accessibility' of the material. Furthermore, it was recommended that allowance be made for a 'multiplicity of approach'. Presenters needed to look carefully at the practical relevance of their material to the classroom. Finally, it was believed that a study guide would serve a stabilizing effect.

A third opportunity to assess the course was offered at a discussion held with high school co-ordinators after the completion of the Area One in-service programme (Cape Town Teachers' Centre 11-09-87). One respondent felt that certain skills might as effectively have been presented on one afternoon than to have had the course spread over a number of sessions (especially as one presenter had advised participants that there was little point in their attending the remaining sessions as the most important content had been covered in the first session). A counter view was that the smaller units were preferable to a one-off programme as they afforded the course-participant the opportunity to assimilate and implement the ideas. Another respondent criticised a particular course that had been held early in the year: 'that session put a lot of people off'. A further assertion that participants did not know where the programme was heading and how to implement programme material was refuted by a presenter who noted that the organizers could not be held responsible for participants who joined the programme half way through the year. Another respondent stated that it was very difficult for teachers from his school in Fish Hoek to attend thirteen workshops spread over a whole year. Other comments concerned difficulties co-ordinators experienced in implementing the programme within their schools. Two-week blocks of two periods rather than one period a week were preferred as they allowed teachers the

opportunity of covering the subject matter more adequately. A further suggestion was for co-ordinators to be timetabled to teach Area One skills to all standard six classes, thus allowing co-ordinators the opportunity of establishing rapport with the new pupils which, in turn would facilitate the identification process later. Finally, it was pointed out that there was an urgent need for co-ordinators to involve 'upper management' in the programme.

With the view to reaching a wider circle of schools, permission was granted by the regional Chief Superintendent of Education to have a truncated version of the programme repeated in 1988 which included a visit to Ellerton Primary School and an address on research skills by the principal, Ms E. Smith. Modifications were also made to the high school programme in view of its overlap with the school library and guidance services' curricula: and an entrepreneurial programme (designed by Mr H. Marais and professor W. Thomas of the Small Business Development Corporation 1988), and a futuristics programme (compiled by Mr G. Brown 1988) were substituted for the research and life skills' programmes.

Reference to table 5.1 allows for comparisons to be made between the relative successes of the 1987 and 1988 in-service programmes. It should, however, be noted that the wording in the 1988 questionnaire to schools was tightened in order to prevent schools from presenting inflated statistics. This means that the 1988 data should be more reliable than that of the previous year.

On average (Gifted Education Co-ordinator, Cape Town 1988b), there were 9 additional primary schools (34 in total) and 1207 more pupils than in 1987, involved in aspects of the Area One programme. 18 high schools (one fewer than in 1987) and 749 fewer pupils were involved in aspects of the programme. Only 3 and 4 high schools respectively offered the entrepreneurial and futuristics courses. There are two possible reasons for the small number of schools offering the entrepreneurial course, firstly the fact that the in-service

programme was presented late in the year thus not affording schools sufficient opportunity to implement the programme before the questionnaire was due; secondly, an unsubstantiated view that the content was peripheral to the normal school curriculum.

In consultation with Mr J. Goss, Regional Chief Superintendent of Education during the third term 1987, it was decided that the Area One and Two programmes would, as from 1988, be maintained by the superintendents of education thus leaving the regional co-ordinator more time to commit to the Area Four programme. To assist superintendents in their task a series of Area One training videos was commissioned from the Centre for Educational Technology. In many respects this move underlined the progress that had been made in the implementation of the programme. Evidence of the relevance of the thinking skills' component of the Area One programme is the fact that at least two primary school subject day courses held at the Teachers' Centre during 1988 had built a thinking skills' component into their courses.

5.4 Critical Evaluation of the Area One Programme Content

The Area One programme was designed to provide all pupils with the basic skills required for gifted behaviour in a changing society (5.2) through the promotion of practical thinking skills (problem solving, creative, entrepreneurial, research skills' training); and appropriate affective behaviour (creativity and life skills' training). The question, however, is whether this aim was being achieved.

In order to assess the relevance of the Area One course, the views of principals and teachers as reflected in the annual questionnaire to schools and the extent to which the programme was implemented in schools will be gauged and discussed. The programme's relevance to a broader South Africa will also be assessed.

A questionnaire attached to the annual feedback report sent to all schools asked principals and co-ordinators to indicate the degree to which they felt that the Area One programme was an important component of gifted education and the degree to which they were willing to include these components into their normal school curriculum (refer Addendum B).

Questions (below)	5	4	3	2	1
Area One programme is an important component of gifted education (n=58)	39	10	7	1	1
Willingness of schools to implement aspects of the Area One progr (n=60)	34	12	9	3	2

Table 5.2 (above) Responses from principals and co-ordinators, regarding aspects of the Area One programme, based upon data in the 1988 annual questionnaires to all primary and high schools (5=agree strongly; 1 disagree strongly)

Figure 5.1 (below) Data tabled in 5.2, converted to percentages to indicate (5.1.1) whether an Area One programme was regarded as an important component of a gifted education programme and (5.1.2) the extent to which schools were prepared to implement the programme.

Figure 5.1.1

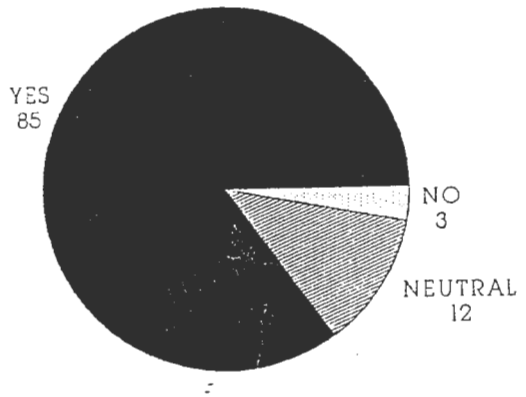

Figure 5.1.2

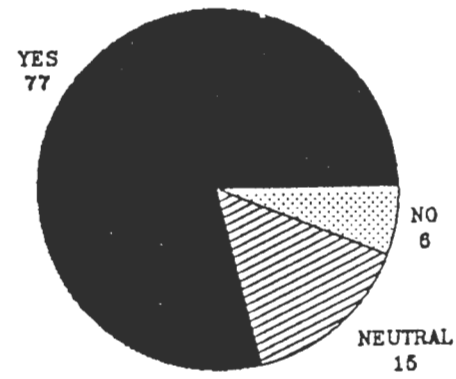

Table 5.2 and figure 5.1 set out the responses of principals and co-ordinators which, when compared with their reactions to

the other three components of the Four Area model (figures 6.1., 7.1), seems to suggest that the Area One programme enjoyed the support of schools by being regarded as an appropriate and acceptable component of the gifted education programme.

The results were, however, inconclusive. The limitation of the above data is that the questionnaire was restricted to principals and co-ordinators whose taken-for-granted reality tended to reflect the Cartesian episteme and would therefore not be seen to represent the entire education spectrum. Furthermore, the schools had a vested interest in Area One enrichment as it provided a convenient way in which to quantify their own involvement in gifted education. It seems necessary, therefore, to evaluate critically the content of the Area One programme in order to assess its appropriateness not only within a Cartesian context but also to see whether it will effectively realize its aim of equipping pupils to act meaningfully within a changing South African.

Aspects of the Area One skills' programme are, however, problematic even when viewed from within the traditional education establishment. DeBono's model of thinking (the following points refer equally to the Torrance model) has, for example, been criticised by John E. McPeck (1981:9) on a number of counts. Firstly, McPeck claimed that no generalized thinking skill can replace basic expertise in, and knowledge of the field in question:

> ...critical thinking about an historical question requires, first and foremost, the skills of an historian; similarly, critical thinking about a scientific question requires the knowledge and skills of a scientist.

Secondly, he criticized lateral thinking because its major aim is quantity or, what he termed 'uninformed guessing' (ibid 121) and not veracity or quality. Thirdly, he pointed out that lateral thinking should only be used once the arduous task of applying vertical thinking has been exhausted:

> One does not reach for the explosives until one has tried the latch on the door' (ibid 122-23).

McPeck felt, therefore, that it is far more important for schools to teach the discipline of conventional thinking properly from within specific domains than by offering courses in problem-solving, critical thinking or logic.

> ...most people believe, and not without foundation, that the traditional disciplinary modes of thinking are the most worthwhile in the long run. For all of their shortcomings, the disciplinary traditions do represent very powerful ways of thinking about, learning about and viewing the world. They are not merely stagnant collections of 'information' or 'content' as DeBono implies. They too are *ways of thinking*. (ibid 112)

De Bono, countered such arguments by saying that conventional critical thinking is reactive and,

> ...lacks the creative, constructive, and design element necessary for social progress (DeBono 1984:16)

and defended his CoRT programme claiming it broadens the perceptual map for pupils; a claim that was, however, disputed by P. Chance (1986b).

In defence of discrete exercises in problem solving and creative training, what should be borne in mind is that Area One skills were not seen as ends in themselves but intended to be used by teachers as tools to promote problem solving, creativity, research, affective skills within those subjects they teach, hence the strong plea made to schools to find ways in which the skills might be contextualized within subject domains. There is evidence of this occurring successfully in some schools, as revealed in the following statement by Sigi Howes (Cape Town Teachers' Centre 31-08-89):

> We are using a lot of the DeBono thinking skills in our content subjects very successfully. They [the

> pupils] enjoy the skills as they extend their thinking.

Clearly, however, further investigation is necessary to see whether the Area One skills, as presented by the in-service training committee, do in fact teach pupils to function in a more competent manner. Unfortunately, a shortcoming of the current research is that pupils were never directly included in the samples therefore findings are incomplete.

The question whether the Area One skills' programme equips pupils to act with competence within larger socio-political and ecological contexts will be addressed in the remaining part of this section.

If it can be accepted that the views of those teachers canvassed largely reflect Liberal middle class norms (3.4) it might be useful to look at 'white' education from a 'black' perspective in order to explore the view that white middle class hegemony is not necessarily preferable to an education experience that embraces the full cultural diversity of South Africa. It follows that when viewed from this perspective, the Area One skills' programme might be seen as a poor substitute to exposing pupils to the full rich cultural diversity of South Africa.

W. Morrow (1987:2) for example felt that white education has been impoverished because it separated itself from wider political issues:

> ...the education of whites has fallen behind the education of blacks, and it is a serious error to think of the main educational problem in this country as that of "We've got it, how can we share it with others?"

Vilakazi (1987:5) also saw an impoverished white education system:

> The great poverty of white education comes from the fact that it misses completely the enormous enrichment which would come to the human personality from the assimilation and appropriation of the

> spiritual and cultural wealth of the African masses. ...I have in mind genuine history of the African people; the language...the folklore, and poetry...the art, architecture, songs, instrumental music, and dance of the masses of Africans; the philosophy and values of the African people; the attitudes and conduct of the African people..... this is not even to mention the crucial enrichment which would come to the human personality in the education of whites through the presence, in the same schools, of talents, brains, personalities, the voices of Africans, as teachers, students, administrators, and principals.

Mark Mason (1987:2) pointed out that very few white pupils would be able to cope if confronted by real-life political, social and/or economic issues. He said that in white schools:

> ...creativity is often very significantly stifled. Pupil government is almost unheard of - pupils have a nominal or no say in school decision-making. This is an area where pupils from other race groups are often streets ahead of their white counterparts. I have very few pupils in my classes who would be able to hold their own in a democratic decision-making forum in a township or Cape flats school.

It would appear, therefore, that if the content of the Area One skills' programme is found to be credible (a claim which will be evaluated in the next section) it can play only a limited role in providing pupils with the life, creative and problem solving skills required for a new South Africa if offered in segregated classes.

Earlier in this section the problem solving and creative skills' programme was evaluated from a traditional perspective and found wanting. In order to take the investigation further it is necessary to view the Area One programme in terms of the Socialist and Deep Ecology epistemologies.

The researcher is indebted to Mary Dewar (1986 39-45; 50-60) for her critical analysis of aspects of gifted education. Some of her insights have been appropriated into the following paragraph.

Critical researchers would criticize the content of the Area One programme for being normative. This, they believe, would encourage a context-free, technocratic mode of rationality in pupils. This would lead to the Area One programme being reified by teachers and used to justify what ought to be valued in thought-processes without reference to moral, ethical or ecological considerations. The entrepreneurial, futuristics and life skills' programmes would be criticised on the ground that they obscure the complexity of social issues, thereby having the effect of flattening reality. Finally, the Area One programme would be criticised for encouraging the perception that failure to think or act creatively lay with the individual and not in the social nexus.

Deep Ecologists would criticize the Area One programme for not encouraging pupils to see themselves as part of the whole. The material in the life skills' course, for example, would be criticised for being personally referenced with little emphasis on empathy and service. The futuristics course would be criticized for preparing pupils for a high-tech future where survival and success are viewed as personal challenges independent of broader social and material ecological systems. Problem solving, and creativity modules would be criticized on the grounds that the skills are viewed conventionally as pragmatic, individualistic exercises and not as modes of enquiry leading to an understanding of particularization and authenticity of Being.

5.5 Towards an appropriate Area One skills' programme.

The foregoing analysis revealed that the Area One enrichment programme with its decontextualized problem solving, creativity, life skills' courses is in many respects a poor substitute for integrated schooling; real-life participation in school-based democratic processes; formal thinking within subject domains. It would therefore seem that the Area One

programme does not go far enough in providing pupils with the necessary skills they will require for gifted behaviour.

What is therefore required is for the Area One in-service planning team, together with the regional co-ordinator, to rethink their basic orientation in order to present an Area One skills' programme which is contextualized in the real world. Such a programme would encourage teachers to move away from educating pupils to be self-contained, independent, beings-in-the-midst-of-the-world, towards educating pupils to understand their own existential particularity, and their responsible for finding creative ways of achieving authenticity as beings-in-the-world.

One way in which to contextualize the Area One course and to enhance its credibility is to train teachers in cultural (and ecological) literacy. Essentially, being culturally literate means having the ability to decode social reality.

Social reality is encoded in a myriad different ways: by parents, through the media, styles of dress and architecture, epistemologies etc. Teaching pupils to become culturally literate means providing them with skills that enable them to 'read' social reality while, simultaneously providing them with the skills necessary for encoding a personal reality. Cultural literacy should enhance pupils' ability to take responsible control over their lives.

Bowers (1982:27) believed that it is necessary to teach cultural literacy because the culture of relativism, driven by the ideology of Enlightenment and technological innovations has meant that all aspects of social and psychological reality are increasingly subject to negotiation. He believed that pupils who have a knowledge of the cultural foundations of thought will increasingly be able to negotiate new meaning and new goals and not simply accept reality as defined by others.

Areas that warrant close examination could include social and ecological themes such as: individualism, technology, progress, knowledge, time, work, race, gender, authenticity.

The SATA (1989) working document 'Educating for a democratic non-racial society' could serve as one useful focal point for the exploration of topics such as Liberalism, Democracy, Pupil Government etc. Cultural literacy should not, however, be presented as a discrete course or series of modules. Curricula also need to be dereified. This means that teachers will need to be taught how to teach their subjects differently[31] (6.5).

Although educating for cultural literacy is recommended by Bowers (1982:27) to help pupils to negotiate 'the relativizing forces of our culture', the danger exists that cultural literacy might itself become a relativizing force. This appears already to have happened in Sowetan schools where people's education (a version of cultural literacy) has helped create the environment in which a local branch of COSAS was able to order principals to stay out of 'our schools' (Weekly Mail 21-06-90).

L. Goldman (1984:60), warned that Socratic dialectics[32] (a method that can fruitfully be used to promote cultural or ecological literacy) is unsettling, unnerving and dangerous. He quoted from John Dewey in support of his argument:

> If we once start thinking no one can guarantee where we shall come out, except that many objects, ends and institutions are doomed. Every thinker puts some portion of an apparently stable world in peril,

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[31] Capra's description (1988:226) of what happened to him after reading Adrienne Rich's Of Woman Born gives some insight about the liberating effect of becoming culturally aware: 'I experienced a radical change of perception, which threw me into an intellectual and emotional turmoil. I realized that the full power of patriarchy is extremely difficult to grasp because it is omnipresent. It has influenced our most basic ideas about human nature and about our relation to the universe...It is the one system which, until recently, had never been openly challenged, and whose doctrines were so universally accepted that they seemed to be laws of nature; indeed, they were presented as such.'

[32] According to Plato (1963:302), 'Dialectic...is the only activity whose method is to challenge its own assumptions so that it may rest firmly on first principles'.

> and no one can wholly predict what will emerge in its place.

Goldman commented that citizens want schools to relay their cultural traditions, not change them, adding that if teachers:

> ...emphasize change and enquiry to the detriment of continuity, their communities may censor the activity, suggest that the teacher relocate, or force the teacher out of teaching. (ibid 61)

Goldman claimed that his fears were grounded in historical reality, for even Socrates came to realize the danger of dialectic:

> Don't you notice how great is the harm coming from the practice of dialectic these days?...Its students are filled with lawlessness. (Socrates, quoted in Goldman ibid 60)

As convincing as Goldman's argument might appear, it does not take into account all of the facts. For example, the youth to whom Socrates was referring were being influenced by the Sophists who:

> ...undoubtedly helped in the process of (social) disintegration, for they destroyed the sanctity of tradition in the minds of their pupils and put nothing adequate in its place. (Armstrong 1965:24)

The same could be said of the radical members of COSAS who in the news report quoted earlier did not seem to have the interests of the pupils in mind.

Clearly, any teachers, Sophists, radicals who attempt to nihilate certain socio-political definitions of reality while simultaneously legitimizing others are not teaching cultural literacy, but indoctrinating their pupils. In order to teach cultural literacy in the true sense, Socrates (through Plato) believed that teaching should be in the hands of philosophers or guardians and not Sophists. Guardians were mature wo/men of virtue and wisdom who in Plato's words, were able to lift:

> ...their mind's eye to look at the source of all light, and see the Good itself, which they can take as a pattern for ordering their own life as well as that of society and the individual (Plato 1963:310)

It should be evident from the above that the implementation of cultural literacy programmes might, in certain cases, prove problematic. Despite difficulties, however, schools cannot ignore their responsibilities in this regard. What was also argued is that the Area One programme as it has been conceived is inadequate. Discrete, decontextualized skills are of limited value to a pupil who has not been grounded in social reality. What is required to promote gifted behaviour in all pupils is a refined integrated Area One programme. Such an approach would assume racially open schools; would ensure that ways be found to make pupils culturally literate; would provide opportunities for, what Mason called, 'pupil government'; would provide a contextualized skills' programme where pupils would be taught how to think, solve problems, do research, live creatively.

Once educators realize that the human condition is grounded in particularity; that their taken-for-granted Phenomenal world is socially constructed; that authenticity of Being, and true autonomy comes through the negotiation of meaning from moment-to-moment then they will acknowledge the necessity of finding appropriate ways to educate their pupils to become responsible, mature adults, instead of anonymous beings-in-the-midst-of-the-world subject to the dictates of *das Man*. An integrated Area One programme along the lines suggested above would help realize this aim.

5.6 In conclusion

It was evident from the foregoing overview and discussion that opposition to the Area One programme, did not come from those who operate within the Cartesian framework, such as: principals, co-ordinators (5.4). Even McPeck (5.4) who

criticized the DeBono thinking skills' programme could, in certain respects, be seen as endorsing the traditional Area One programme because of his call for the refinement and contextualization of critical thinking skills within subject domains.

The most persuasive opposition to the Area One programme would come from those operating outside the Cartesian framework. Such critics would highlight the fact that normative, decontextualized Area One skills are a poor substitute for involvement in real-life issues, decision-making processes and exposure to the full rich cultural diversity of South Africa.

A refined integrated Area One programme which aimed at making all pupils culturally literate; which provided opportunities for contextualized skills' training was therefore recommended.

It was argued that pupils who are culturally literate are more able to negotiate social reality and thus use discrete creative, problem solving, entrepreneurial, research, life skills to develop ways of achieving autonomy and authenticity of Being.

CHAPTER SIX

CRITICAL EVALUATION OF THE AREA TWO ENRICHMENT PROGRAMME

6.1 Introduction

An outline of the suggestions that were made to schools on how they might introduce and run an Area Two programme is given (6.2) after which the implementation of the regional Area Two programme is discussed (6.3). Critical analysis will show that the Cartesian assumptions upon which the programme is based, as reflected in its model, bureaucracy, management structures and identification procedures are problematic (6.4). Suggestions for developing a more appropriate and indigenous Area Two curriculum are discussed (6.5). The Laboratory Schools' curriculum development programmes are reviewed and the suggestion is made that the various programmes have had an osmotic, ecological affect on curriculum development (6.6).

6.2 Area Two Enrichment

Proposals put forward by Eduard Ungerer during the provincial in-service training programme in 1985 (Faasen et al 1984) were adapted to create the Area Two model.

The aim of the Area Two model is to provide a framework within which pupils whose gifts fall within the ambit of the school's curriculum might be identified and enriched. In terms of proposals put forward, principals were urged to encourage subject departments to draw up criteria that would help identify so-called Area Two pupils. A list of pupils meeting the criteria was to be compiled and filed in teachers' record books. Teachers, with Area Two children in their subjects, were requested to plan at least one enrichment activity a week for such pupils. To facilitate co-ordination, activities were written up using a weekly planning sheet. An

inter-subject Area Two committee under the chairpersonship of the school co-ordinator and comprising one teacher from each subject area involved in the Area Two programme was encouraged to meet regularly to promote inter-subject liaison and Area Two enrichment. It was recommended that the co-ordinator provide the principal with ongoing feedback concerning the programme.

The regional laboratory schools' programme (6.6) was to run concurrently with the Area Two programme. The aim of the laboratory schools' programme was to give certain schools the opportunity of conducting action research in order to develop professional expertise and curricular programmes that would be of benefit to Area Two enrichment.

6.3 The implementation of the Area Two Programme (1986-1988)

From 1986 to 1987 it was suggested that Area Two enrichment should provide for the top fifteen to thirty per cent of pupils within each subject area. However, at a primary principals' seminar on 16 February 1988, a high school principals' seminar on 18 February 1988 and a staff development session at Wynberg Boys' High School (Gifted Education Co-ordinator, Cape Town 1988b:Addendum K) the regional co-ordinator suggested restricting Area Two provision:

> Initially, when we propagated the idea that A2E was for the top 15-30% of pupils in a subject, schools were more willing to become involved, because it squared with the practice of streaming, or placing pupils in ability groupings. However, this broad-band approach tended to ignore the fact that the 15-30% of pupils could also be differentiated into upper, middle, lower groupings, which, in turn, meant that the top few 3-5% of pupils was still possibly not being acknowledged and sufficiently challenged. It was therefore felt that the A2E programme should rather focus on the top 3-5% of pupils.

Table 6.1 shows that despite the fact that almost eighty per cent (78 out of 102) of principals acknowledged the need for Area Two enrichment in their schools, by the end of 1988 only 11 schools (slightly over 10%) had gone as far as to draw up lists of Area Two pupils, and only 25 were prepared to consider initiating or continuing an Area Two programme (refer Addendum B). The breakdown of these responses is set out in Table 6.2 and graphically represented in Figure 6.1.

6.4 Evaluation of the Area Two Programme

Reasons for the poor response may be sought in feedback comments from principals during orientation workshops held in February 1988 (Gifted Education Co-ordinator, Cape Town report-back letter to principals 3 March 1988a). Although principals enumerated the benefits of the proposed system as improved teaching methodology; the raising of standards and academic ethos; the extension of pupils who were bored or unmotivated, principals, nevertheless, highlighted numerous problems that could broadly be classified under three headings. Firstly, certain principals felt that the model lacked flexibility and was too bureaucratic - some, for example, believed they had already implemented Area Two enrichment in their own schools but without the lists and files. Secondly, certain principals felt that the proposed system duplicated existing provision offered under other names, for example, differentiation, leadership, olympiads etc. Finally, certain practical problems such as difficulties in identifying Area Two pupils, motivating overworked or inexperienced staff, increased pressure on pupils and elitism were mentioned.

THE CAPE TOWN REGIONAL AREA TWO (A2) PROGRAMME 1988				
	Total Number of schools	Principals acknowledging the need for A2	Schools prepared to implement A2	Schools with A2 lists of pupils
Primary	65	49	20	4
High	37	29	5	7
Total	102	78	25	11

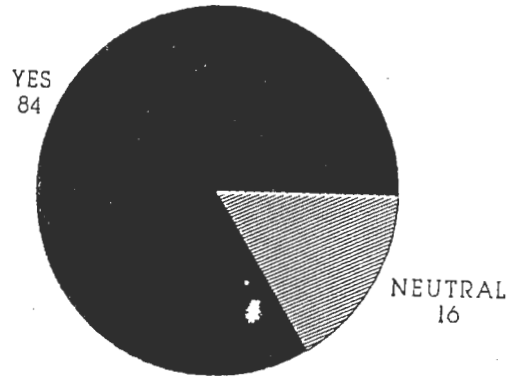
Table 6.1 Schools' reported involvement in the Area Two programme, compiled from questionnaires completed by principals during the Area Two in-service training workshops in February 1988, and compared with the schools' annual feedback reports submitted in the final term, 1988.

Questions	5	4	3	2	1
Area Two programme is an important component of gifted education (n=58)	29	20	9	0	0
Willingness of schools to implement an Area Two programme (n=59)	18	7	18	8	8

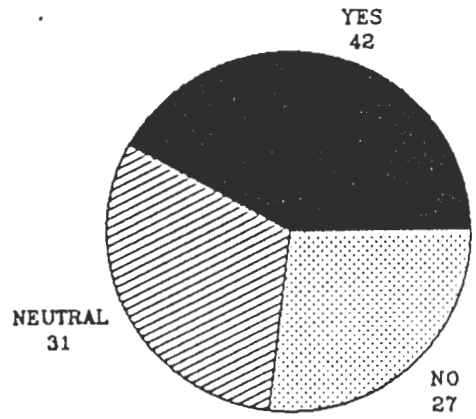
Table 6.2 Responses from principals and co-ordinators regarding the implementation of an Area Two programme in their schools, based upon data in the 1988 annual questionnaire to all primary and high schools (5=agree strongly; 1=disagree strongly)

Figure 6.1 (below) Data tabled in 6.2 above, converted to percentages to indicate (6.2.1) whether an Area Two programme is regarded as an important component of a gifted education programme and (6.2.2) the extent to which schools are prepared to implement such a programme.

6.2.1 A2E is an important component of a gifted education programme



6.2.2 Schools prepared to implement an A2 programme



A critical evaluation of the Area Two approach highlights further problems.

The reliance that Area Two provision places on discrete lists, criteria, records, meetings and evaluation is evidence that it is largely modelled on the Cartesian epistemology and therefore sees education and educational reform as the application of appropriate techniques for the realization of specific goals under certain conditions.

The epistemic community responsible for promoting the Area Two approach: the regional co-ordinator who presents the model to schools and calls for annual statistical feedback; the superintendents of education, principals and heads of department who monitor and evaluate teachers' weekly records and lessons; teachers who themselves generate discreet week-by-week enrichment opportunities for their Area Two pupils are all required to view appropriate educational provision essentially in human-engineering terms. This approach is evidenced in a letter to principals (Gifted Education Co-ordinator, Cape Town 1988a) where the regional co-ordinator,

responding to the above criticisms, justified the Area Two programme:

> While any system has its drawback...we sincerely feel that the benefits accruing from the suggested system far outweigh the problems. We should bear in mind that the system is flexible, and its strengths lie in the way in which systematic and regular planning by all teachers is encouraged; how, from week to week, the needs of the A2 pupils are catered for within the classroom; how cross-pollination between teachers and subjects is promoted; and how enrichment within the classroom takes its rightful place as one of the teachers' priorities.

Underlying the regional co-ordinator's managerial approach is the assumption that it was not necessary for those involved in instituting the programme to understand or to take into account the motives, needs, beliefs of individual teachers; or the inequalities, problems of social conditions and social differentiation within the pupil population (Popkewitz 1984 11-13; 23; 151).

Furthermore, the model's 'ceremonies and rituals' (ibid 12) could be seen as an attempt to give the Area Two programme legitimacy and sanctity in order to project the impression of precision, logic, clarity. This, it would be assumed, would enhance its neutrality and universality. It is indeed ironic that the model, while allegedly promoting growth is, in fact, designed to conserve and acts as a moderating force to regulate and control teachers and pupils, rather than promote their development.

Results of a separate field study conducted by N. Keddie (1971), bring into question the methods that were recommended as part of the Area Two programme to identify pupils for participation in the Area Two programme. His study showed that teachers' assumptions about the relative social and

academic status of their pupils largely determined pupils' achievement[33]:

> It seems probable that the pupils who come to be perceived by teachers as the most able, and who in a streamed school reach the top streams, are those who have access to or are willing to take over the teacher's definition of the situation' (ibid 150).

Keddie's conclusions bear out research on the self-fulfilling nature of teachers' definitions of 'good' pupils (reported in Esland 19871:93) and suggest that a normative approach based entirely on discrete criteria against which pupils are measured for admission to the programme is inadequate.

Because both feedback from principals and the critical evaluation of the Area Two approach have highlighted the model's shortcomings it is clear that alternative methods should be sought in order to address the differing needs of pupils. Meintjes (1989) believed that enrichment should be addressed through the curriculum itself. For, as Bernstein (1970) pointed out, teachers cannot offer children compensatory education before they have been provided with an adequate educational environment. Bernstein's sentiments were echoed in the Cape Town regional co-ordinator's report (1987) and by Evi Doveton (1989:6):

> The promotion of giftedness thus becomes legitimate if integrated into the general educational process which provides for individual growth and development

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[33] According to Keddie's research, so-called A-stream children had an implicit faith in the teacher as expert, believed that the subject matter was legitimate, and had access to the teacher's symbolic world. Furthermore, A-stream children were adept in using the jargon and concepts in assignments without, however, necessarily understanding them. C-stream children, in contrast, because they were grounded in the common-sense-world, were more sceptical of both the teacher and the subject matter. C-pupils' common-sense questions were not addressed in class because they were not deemed by the teacher as appropriate or relevant, and because they were being asked by a C-stream pupil who, teachers assumed, would not be able to understand the answer. Keddie pointed out that contrary to conventional belief, A-stream pupils were *less* autonomous than C-stream pupils.

> of all pupils. Promotion of and provision for gifted potential of the developmentally advanced does not require a different education model - it is but developmentally appropriate opportunities that are offered. The same principles apply to all and it doesn't set gifted child education as a system or gifted pupils as individuals apart. It is therefore obvious that a sound philosophical basis is required in which principles of democracy and social justice are directive.

Theory and practice, however, do not always neatly correspond, as highlighted by Rob Hill (Cape Town Teachers' Centre 11-08-88) when he asserted that the gifted education programme has failed because attempts to accommodate all pupils within the same curriculum have lead to mediocrity:

> I don't think that identification is an issue any more because once you have identified them you don't do anything with them...a couple of years ago this [i.e. gifted education] was the fashion, it was in, and it was a buzz word, and people were interested in it. It was also very contentious and a number of people felt uncomfortable about it and resented it because it was giving pupils swollen heads, making them think they were better. Consequently the whole thing has been played down and I think what Hennie, and a number of people have been doing is instead of uplifting a small group, has been to introduce everyone to so many more things like Problem Solving Bowls, thinking skills and things like this which are very valuable. But by doing all of this I think the bright children are being ignored, and I think we are generally striving for mediocrity. We are bringing the bottom ones up and the top ones down. All nice and social.

Ms Clohessy, participating in the same discussion, agreed with Hill:

> The staff really want subject enrichment...but when you have one, maybe two, particularly promising pupils, you virtually have to deal with them in terms of the others. You haven't really got the opportunity of taking that child and getting stuck into something.

A major challenge, therefore, for gifted education is how to evolve and put into practice a curriculum that achieves the ideals expressed by Bernstein, Dr Meintjes and Ms Doveton, within an appropriate educational epistemology.

Principals at the Area Two in-service training workshops in February 1988 (Gifted Education Co-ordinator 1988a) offered the following suggestions for improving Area Two enrichment: less structure; a gifted programme which created an awareness of needs but which left schools to implement programmes as they saw fit; a return to class teaching and away from subject teaching; the use of outsiders to help teachers cope.

Calls for less bureaucracy and structure, more assistance and empathy, awareness campaigns, replacing subject with class teaching etc. will not necessarily, in themselves, lead to more effective teaching (witnessed by the comments of Hill and Clohessy above). If as suggested above the solution lies within the curriculum itself, it will be necessary to have a clear understanding of what is meant by the concept, curriculum.

Before the question of curriculum is addressed, it should be pointed out that the bureaucratic approach adopted in the Cape Town region differs from that in other regions where the emphasis is on running school-based staff development workshops on, inter alia, differentiation, problem solving, questioning skills, which are believed necessary for promoting giftedness in the classroom (Gifted Education Regional Co-ordinators 1988). Secondly, that rationalization has subsequently taken place in the Cape Town region (5.3) in terms of which the Education Guidance Service has undertaken to maintain the Area Two programme as part of their school development programme while the regional co-ordinator will continue his involvement in specific initiatives (Gifted Education Co-ordinator, Cape Town 1988b).

6.5 Towards a more appropriate Area Two Curriculum

Michael Young (1977) distinguished between 'curriculum as fact', and 'curriculum as process'. The former, based upon the Cartesian model of the universe was seen as the product of an historically specific social reality in which truth was regarded as something discrete, independent, able to be studied, organized, analyzed, external, something through which pupils have to travel:

> Practically everything we do in school tends to make children answer-centred. In the first place, right answers pay off. Schools are a kind of temple of worship for 'right answers', and the only way to get ahead is to lay plenty of them on the altar. The chances are that teachers themselves are answer-centred. What they do, they do because this is what they were, or are, told to do, or what the book says to do, or what they have always done. One ironic consequence is that children are too busy to think. (John Holt, quoted in Esland 1971:92)

Young believed that 'curriculum as fact' mystifies reality because it presents education as 'a thing', thus obscuring the fact that knowledge is socially constructed (ibid 237;242).

In contrast to 'curriculum as fact', Young postulated 'curriculum as process'. Curriculum as process is that which evolves organically through collective negotiation between teacher and pupil.

There are, however, differing interpretations of 'curriculum as process'. At the one end of the 'curriculum as process'-continuum the solution would be sought in the developing of suitable cultural literacy programmes (5.5). Further along the continuum are found the 'possibilitarians' (Whitty 1977:41) such as Paulo Freire. Possibilitarians believe that the development of an ongoing critical approach to 'reality' will lead to consciousness raising or *conciêntizaçåo* (2.3.2). Finally, there are those who believe that theoretical de-reification is not enough and that:

> ...there must be a *practical* de-reification - an actual overthrow of social relations through praxis (Sarup 1978:4)

Gilbert (1984), representing a less radical position along the continuum held that deterministic explanations or abstract images of wo/man remove action from the decision-making context. He felt that knowledge must enable pupils to assess and improve their own situation. A curriculum should therefore be designed to show pupils how decisions are made:

> Whether of town planners locating a road, entrepreneurs opening a business or James Watt struggling with a machine, the learning experience will be productive and useful to the extent that learners share the problem and its possible solutions, and critically examine the course of action taken. Deterministic explanation removes the matter from human influence and adds nothing to the learner's resources for taking similar decisions. (ibid:226)

Whitty (1977:44-5), however, maintained that such an approach, based primarily on questioning hidden assumptions and cultural literacy was a simplistic and inadequate means of changing the texture of social constructs because of its naive faith that demystification would liberate:

> ...all forms and products of consciousness cannot be dissolved by mental criticism...but only by the practical overthrow of the actual social relations which give rise to this idealistic trickery' (ibid 45).

Young (1977:246), commented that teachers quickly discover that their aspirations to change the social, economic and political systems are severely circumscribed by a conservative parent body. This observation echoes Goldman (5.5) and would most probably be ratified by the major proportion of parents whose children attend Cape Education Department schools. This position, however, does not necessary refer to *all* South African schools, particularly certain schools that fall under the jurisdiction of the Department of Education and Training, and the House of Representatives, since the advent of People's Education.

People's Education, according to the National Education Crisis Committee (NECC) (1986:20) (reported in Kallaway 1987:37) can be summed up as follows:

> People's Education means education at the service of the people as a whole, education that liberates, education that puts people in command of their lives.

The NECC stated that People's Education is inextricably bound to the concept of 'People's Power', which, 'is the collective strength of the community', and 'expression of the will of the people' (ibid:37), which has, according to Kallaway (ibid:35) become associated with 'Community Control', or the exercise of power by 'Street Committees' and linked to the establishment of 'Liberated Zones' in its struggle, 'against apartheid, oppression, exploitation and capitalist values, and for a non-racial, democratic, unitary society free of oppression and exploitation...' (Ken Hartshorne, quoted in Kallaway 1987:37)

People's Education, in its current manifestation, is therefore positioned on the more radical end of the 'curriculum as process' continuum, and constitutes part of what Raymond Williams (quoted in Young and Whitty 1977:23) has ca˙led, 'the long revolution' of the working class to liberate itself against capitalist hegemony.

In order to devise truly indigenous, representative and appropriate curricula within which to promote Area Two enrichment, it will be necessary to acknowledge and evaluate People's Education critically.

Clearly, there are certain elements of People's education which are problematic. It is unclear, for example, what is meant by 'people as a whole'. Do 'the people', include active supporters of the Afrikaner Weerstandsbeweging[34], or do they refer only to those constituting so-called 'liberated zones'? If the latter, is it clear that these individuals do not

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[34] A right-wing paramilitary organization which has as its primary aim the preservation of the Afrikaner people.

oppress or exploit one another? If, as is suspected, exploitation, oppression is endemic, then the question is how do the street committees (not to mention agent provocateurs, comrades, radicals) encourage democracy, non-racialism, collective work, and active participation without themselves being guilty of perpetuating 'apartheid' (between those who approve and those who question the goal, aims, values, methods of 'the struggle'), perpetuating 'oppression' (of so-called government stooges, dissidents, pupils wanting to attend classes or write examinations), perpetuating 'exploitation' (of poverty, dissatisfaction, insecurity, fear, ignorance)'?

Because the rhetoric and actuality of the 'struggle' has sewn dissention, fear, civil strife, death; because pupils have been sacrificed to the call for 'education after liberation', the researcher believes that People's Education is based on what Bateson would call a 'wrong epistemology' (2.3.2) and is therefore as flawed as the education system(s) it hopes to supplant. People's Education, therefore, cannot be adapted in its entirety as an appropriate model upon which to base an Area Two programme.

This is not to deny that there are numerous aspects of People's Education that are valuable and, indeed, reflect ideals cherished by proponents of both Liberal and Deep Ecology epistemologies. These aspects would include the emphasis on a negotiated curriculum; calls for democracy, non-racialism, community involvement; calls for the elimination of illiteracy, competition, stunted intellectual development etc. Therefore, it might be argued that once freed from radical militancy, People's Education could help form the basis of a blueprint for a meaningful curriculum which would play its part in bringing about the cultural transition envisaged in the following discussion:

> S: The way animals adapt is through mutation, and that takes several generations, but we are seeing changes of such remarkable speed in a single lifetime that the question is, can we adapt?

> C: Of course, as humans, we have consciousness, and we could adapt consciously by shifting our values.
>
> H: That is exactly the evolutionary role that I see for us. The next evolutionary leap *has* to be cultural. (Extract from the Big Sur Dialogues in 1978 between, inter alia, F. Capra, H. Henderson and L. Shlain, reported in Capra 1988:269)

To design a curriculum which will avoid mediocrity, assist pupils to evolve culturally by adapting their values and promote giftedness, it will be necessary for curriculum developers to acknowledge that although it is convenient to build a curriculum around 'facts', there is also a need to move from a 'curriculum as fact' to a more fluid conceptualization of knowledge. To dereify a curriculum in such a way is, however, an arduous task because it requires, foremost, that teachers become culturally literate, especially as far as their own subjects are concerned. This will require them to question the assumptions upon which their own taken-for-granted epistemologies are grounded, how they view children, their pedagogy, the subjects they teach, the nature of knowledge. The benefits, however, would be numerous. Esland (1971:83-104) put forward the following suggestions for developing a curriculum which would, in effect, merge the Cartesian, Socialist and Deep ecology epistemologies.

Firstly, he recommended that teachers question their taken-for-granted assumptions. This he believed would enable them to see and rectify possible shortcomings in their own epistemological orientation and approaches. Culturally literate teachers would then be less easily seduced by the principles, rhetoric, agendas of radical or conventional ideologies and, instead, seek methods in which to integrate the most beneficial elements of all ideological perspectives (dereification, empiricism, community involvement, egalitarianism, bootstrapping etc.) into an ecologically harmonious curriculum. Such a curriculum Esland claimed would divert the focus from how pupils absorb knowledge, to an analysis of its social origins and consequences, and how it

might be creatively structured. The knowledge thus generated would be a far more negotiated commodity between pupil and teacher. Pupils would be viewed as active creators rather than passive absorbers of knowledge; which might mean that the concept 'intelligence' would give way to 'curiosity' as a quality to be encouraged and nurtured.

Poor teaching, Esland pointed out, would then be associated with the reification of knowledge, while good teaching would be equated with the development of workable cognitive technologies capable of projecting multiple inferential structures containing both enactive and theoretical knowledge.

Finally, Esland believed that re-conceptualizing the curriculum in this way might have ecologically-appropriate consequences. Old subject boundaries might slowly dissolve with new configurations of knowledge emerging. 'Summarizing subjects' able to unify previously discrete zones - anthropology, communications, linguistics, design, technology, ecology, cybernetics, ethology might emerge. These could, in time, form larger more stable knowledge structures:

> We may, in fact, be seeing the crystallization of large over-arching fields of knowledge which summarize and integrate previously discrete zones. Some possible candidates have already been suggested - anthropology, ecology and ethology. (ibid 100)

It is the belief of the researcher that if curriculum developers and teachers were able to respond appropriately in the ways suggested by Esland above, dereified, open-ended, fluid, indigenous, ecologically contextualized curricula would develop. Such curricula would enable all pupils to become antonomous, proactive, creative, culturally literate, problem seekers capable of bringing into being the cultural transition hypothesized in the Big Sur dialogue quoted above.

Curriculum development as conducted by Laboratory Schools will be assessed in 6.6. The point will be made that measured empirically, the laboratory school programme successes have

been modest; measured ecologically, however, there are signs that an appropriate Area Two curriculum might be possible to develop.

6.6 The Laboratory Schools' Programme and Area Two Enrichment

To re-activate the laboratory schools' programme, a meeting with 13 of the original schools together with 14 additional schools was convened on 11 June 1987. At the meeting the functions, goal, objectives and areas of action research were delineated. Sixteen primary and ten high schools committed themselves to the following programmes (Gifted Education Co-ordinator, Cape Town 1987b): Correlated Differentiated Group Teaching, Brain Compatible Education, Compacting, Alternatives to "Chalk and Talk" and Magnet Classes. The development of each of these projects will briefly be reviewed.

The Correlated Differentiated Group Teaching working committee consisting of five standard three teachers from four schools met five times, initially under the guidance of Ms A. du Toit, responsible for Junior Primary education. It was planned that these teachers would learn the skills mastered by junior primary teachers, apply them to their own class teaching, make refinements and then run in-service training courses initially for other primary school teachers, then ultimately for high school teachers (Gifted Education co-ordinator, Cape Town 1987a).

After a successful orientation programme it was reported that (Gifted Education Co-ordinator 1987b):

> Already much very real progress has been made and it is clear that the teachers participating in the programme are finding differentiated group teaching a useful and practical tool to assist in Area Two enrichment.

However, no further meetings were held and the in-service component of the programme failed to materialize. The major reason was that three out of the seven participants had to

withdraw from committee work (the one having resigned from teaching; the other two went on long leave).

Two other action research committees: Compacting and the Elimination of Repetition (MacArthur 1988), and Alternatives to Chalk and Talk (Schmidt 1988) also failed to develop to the stage that they could embark upon in-service training programmes for similar reasons. The former committee met six times and reported that:

> Progress has been steady but of necessity slow' (MacArthur ibid).

The convener, however, took two years sabbatical and the decision to encourage other schools to participate in an inter-school cross-curricular exercise was postponed. The Alternatives to Chalk and Talk-committee met on four occasions after which it was reported that:

> ...the committee experienced great difficulties in finding suitable times to meet, as the members' extra-mural commitments did not "dovetail". Another problem was the lack of continuity resulting from staff changes, members going on leave etc. (Schmidt ibid)

A committee consisting of four primary school principals was convened to try to implement Brain Compatible Education principles (Buzan and Dixon 1978; Della Neve et al 1986; Hart 1983, 1986; Mentz 1987, Sagan 1978) within the classroom. This committee conducted six planning sessions after which one of the four schools, The Grove, presented their action research proposal to a departmental Curriculum Services' committee which approved their project (Gifted Education Co-ordinator, Cape Town 1987a & 1987b). Unfortunately, none of the other three schools initiated programmes, reportedly because of alternative commitments.

The Grove proposal led to the creation of a standard one pilot class based on Brain Compatible Education principles at the beginning of 1988 and was extended into standard two of the following year.

> ...the method has (subsequently) spread through school policy to all the other Std 1 and 2 classes to a greater or lesser extent' (Lowenherz and Röntsch 1988, 1989).

Annual reports (ibid) revealed that The Grove Brain Compatible Education pilot programme was very successful.

Westerford High School's investigation validated the positive, long-term effect of their standard seven Magnet Class (Bottaro 1987; Clark 1988). This endorsed The Grove findings that enrichment could successfully be achieved within an appropriate curriculum.

The following conclusions can be drawn from the above. Firstly, it would appear that the primary impact of the action research was on the schools and teachers actively involved in the programme. As no in-service training courses have as yet materialized it can be assumed that the wider effects of the programmes have only been communicated tangentially through reports made available to Curriculum Services, the Education Guidance Services and schools; from visits to certain laboratory schools by teachers and curriculum planners from various education departments; and from contact within and between schools. However if, as has been suggested (2.3.3 and 3.3) humans share a common consciousness as reflected in the logo to the Four Area Curriculum Extension and Enrichment guide; the quotation, 'You are the world and the world is you'; and biological research conducted by Sheldrake (1985), then the laboratory schools' programme might also be having an influence, ecologically, as a result of social and psychological networking, and not only empirically as reflected in the agenda of meetings, or in-service training programmes. This seems to be borne out by a significant development in the regional laboratory school's programme: namely, the commissioning of an action research project, by Dr V Jordaan of Curriculum Services, to investigate the feasibility of fusing the various senior primary content curricula into one subject. Although difficult to

substantiate, it is interesting to speculate on the extent to which this programme has its roots in current action research initiatives.

There is thus a strong possibility that many, if not all of the ideas discussed in 6.5, as also experience gained in the above action research programme might shortly be integrated into developing curricular programmes that would promote the giftedness of all pupils in an ecologically sensitive manner within a common curriculum.

6.7 Conclusions

Despite schools seeing the value of Area Two enrichment, there was very little support among principals for the introduction of a formalized Area Two programme as recommended by the regional co-ordinator. The bureaucracy that principals felt would be spawned by the proposals was one inhibiting factor. Procedures recommended for the identification of possible Area Two pupils were also shown by research conducted by Keddie to be inadequate. Despite the numerous shortcoming of the proposals recommended to ensure adequate Area Two enrichment, the regional co-ordinator nevertheless felt that the procedures had merit, especially in view of reports that pupils with specific academic talents were not being accommodated during class time.

If, as Meintjes, believed, the curriculum itself had to be addressed in order to cater for Area Two pupils, it was thought necessary to have a clear idea about how such a curriculum was to be conceived. Various views about different forms that curricula might take were discussed and the conclusion reached that a dereified curriculum drawn up by teachers who were themselves culturally literate would go a long way towards providing pupils with the skills required to understand their subjects so that they might become antonomous learners.

It was also argued that despite the fact that none of the Laboratory School action research programmes had been formally shared through in-service programmes with other schools, the expertise and insights gained as a result of the curriculum projects have had an osmotic effect on teaching in the Cape Town region and on Curriculum Services itself.

CHAPTER SEVEN

AN EVALUATION OF THE AREA THREE ENRICHMENT PROGRAMME

7.1 Introduction

The shortcomings of traditional withdrawal programmes are reviewed (7.2) after which the modified Area Three approach is explained (7.3). Reasons for the relatively small number of schools offering Area Three withdrawal programmes are discussed and the withdrawal concept critically analyzed (7.4). The inter-school components of the programme, with particular reference to the Futures' Conferences, Problem Solving Bowls and the Tsitsikamma Holiday School are discussed with a view to assessing their relevance to a changing South Africa (7.5).

7.2 Withdrawal Programmes prior to the Area Three model

Prior to the development of the Four Area Enrichment model, most schools offering gifted education used the pull-out method (1.5). In terms of this approach, pupils identified as gifted (usually from intelligence quotients, academic achievements and teacher nomination) were given the opportunity of missing normal class lessons in order to work, either individually or as a group, on enrichment projects.

One of Eby's (1984b:35) criticisms of the pull-out system was that it necessitated the identification and labelling of pupils as 'gifted':

> The "gifted" label can create confusion, and ego damage. As Hain Ginott points out, direct praise of personality, like direct sunlight, is uncomfortable and blinding". Children who are labelled "gifted" feel set apart from their peers; they feel guilt and fear when they don't live up to the label.

Barbara Clark (reported in Feldman 1986:66), also expressed strong reservations about withdrawing pupils from normal class activities, stating that:

> ...pull-out programs are probably responsible for more horror stories than any other modification.

Although the withdrawal system implemented in the Cape Education Department was not unique to gifted education (remedial programmes and music functioned in the same manner) pull-out programmes came under increased criticism (Mentz 1989), firstly, for being elitist:

> ...reminiscent of country club selection practices in the 1950s, where individuals were accepted and rejected without ever being informed what the criteria were. (Eby 1984a:35)

Secondly, some teachers questioned why they should lose their 'best' pupils to the pull-out programme. Thirdly, many pupils were reluctant to withdraw, fearing they would miss important work while out of the class. Fear was also expressed that because the system highlighted differences between pupils, those not in the pull-out programme were made to feel inadequate.

Renzulli (1987:22), however, argued the benefits of a pull-out system explaining that it provided:

> ...islands of freedom where we can truly respect individual interests, abilities and learning styles.

He, however, added that such programmes:

> ...should be designed to comply with the highest kind of academic and artistic rigor. (ibid)

While there are a number of primary and high schools offering successful traditional pull-out programmes which would meet the criteria set out by Renzulli, the focus in the present study will be on the appropriateness, and overall acceptance

of the Area Three enrichment model which, it will be shown is essentially a modification of the traditional approach.

7.3 The design and implementation of the Area Three Programme (1986-88)

In terms of Area Three enrichment, it was recommended that schools offer pupils opportunities to participate in both intra-school and inter-school pull-out programmes. Area Three made provision for a fluid, modular form of withdrawal where:

> ...*certain*...pupils withdraw for *certain* activities at *certain* times. (Guide: 4).

The assumption underlying the proposal was that because *all* pupils are gifted in some or other way (1.6 and 4.5), all should have equal access to enrichment opportunities subject to the satisfactory completion of a pre-task activity (Guide: 14) along the lines recommended by Eby (1984b:39). The Eby pre-task identification system (quoted in the guide: 9):

> ...is a critical component of the programme because it stimulates "real life" conditions of goal attainment and reward of achievement. It requires children to:
> * actively seek entry into the programme;
> * behave in an independent manner to complete the requirements of entry;
> * demonstrate ability, creativity, and task commitment by producing a simple product.

To implement an intra-school pull-out programme it was recommended that the co-ordinator and her/is team should decide which presenters and which modules were to be included in the programme. Presenters were to be appropriately timetabled. Synopses were to be compiled describing the module(s), and outlining the pre-task activities. Details of the programme were to be advertised throughout the school. Prospective participants applied by completing the prescribed pre-task. Each pre-task was to be evaluated and all candidates were to be given evaluative feedback. Unsuccessful

candidates were to be told why their tasks fell short of the required standard and given an opportunity of re-completing their task. Those candidates who achieved the minimum standard were to be allowed to participate in the Area Three option.

Reference to Table 7.1 and Figure 7.1 indicate that the schools' responses to Area Three enrichment have been ambivalent. Although more than fifty per cent of schools stated that an Area Three Enrichment programme was a necessary component of a school's gifted education programme, only thirty three per cent stated that they would implement such a programme (Gifted Education Co-ordinator, Cape Town 1988) (refer Addendum B). Unfortunately the questionnaire failed to differentiate between the traditional extra-curricular programme and the Area Three intra-school withdrawal programme. If, however, it is assumed that most schools participated in a variety of inter-school activities (clubs, societies, sport) as part of their school programme, a more accurate assessment can be gauged of the schools' commitment to Area Three enrichment by establishing the number of schools actively offering an intra-school withdrawal programme. Feedback from schools (ibid), however, showed that only 9 (14%) out of the 65 primary schools and 12 (32%) out of the 37 high schools offered intra-school withdrawal programmes in 1988. This gave a total of 20% (Table 7.2), significantly lower than the 33% of schools that stated they would be prepared to implement an Area Three programme, or the 56% who felt it was important.

Questions	5	4	3	2	1
Area Three programme is an important component of gifted education (n=57)	21	11	8	11	6
Willingness of schools to implement an Area Three programme (n=54)	13	5	10	5	21

Table 7.1 Responses from principals and co-ordinators regarding the implementation of the Area Three programme in their schools, based upon data in the 1988 annual

questionnaire to all primary and high schools (5=agree strongly; 1=disagree strongly)

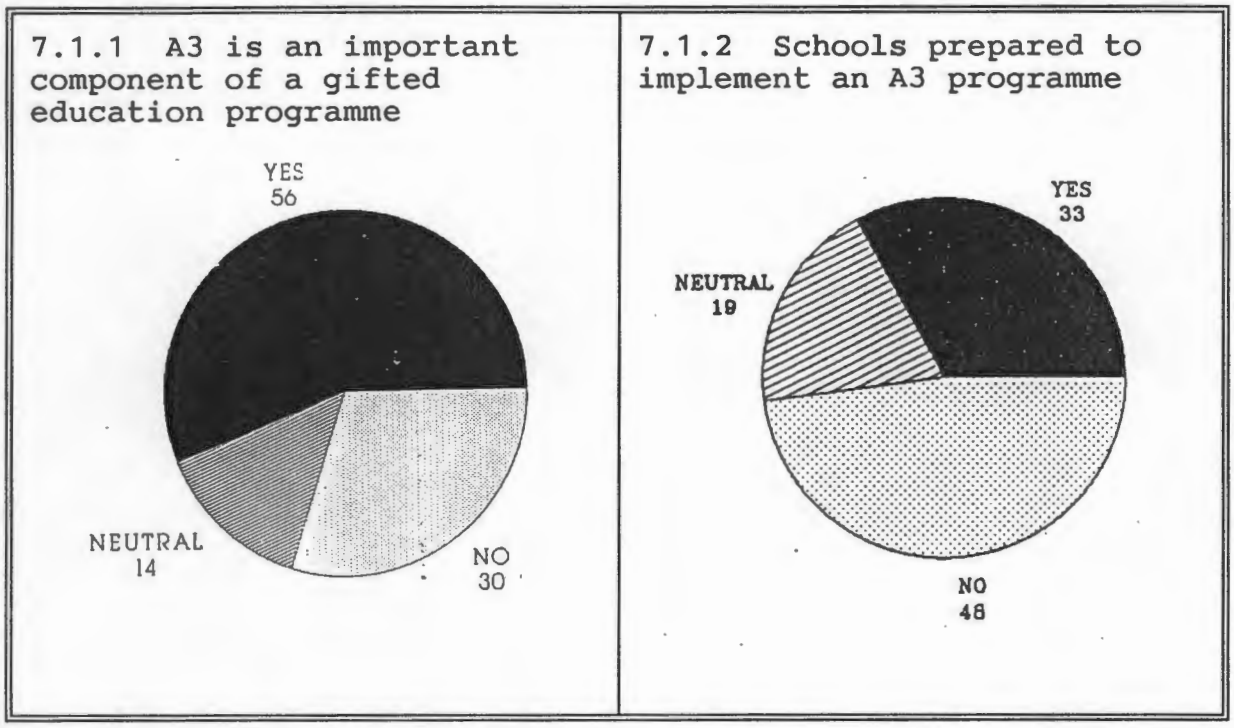

Figure 7.1 Data tabled in 7.1 above, converted to percentages to indicate 7.1.1 whether an Area Three programme is regarded as an important component of a gifted education programme and 7.1.2 the extent to which schools are prepared to implement such a programme.

THE CAPE TOWN REGIONAL AREA THREE (A3) PROGRAMME 1988			
	Total number of schools	Schools offering intra-school withdrawal programme	School involvement reflected in percentages
Primary	65	9	14%
High	37	12	32%
Total	102	21	21%

Table 7.2 Schools' reported involvement in the intra-school Area Three programme, compiled from the 1988 annual questionnaires submitted by primary and high schools

In contrast, however, the inter-school's Area Three programme was significantly more successful. According to the annual questionnaires (Gifted Education Co-ordinator, Cape Town 1987b and 1988b) the most popular non-sporting primary school inter-school activities in 1987 and 1988 were the Mini Maths competitions (1566 participants in 1987, 1690 in 1988) and the Problem Solving Bowls (341 in 1987; 602 the following year). The most popular non-sporting, high school inter-school activities were Olympiads (800 pupils participating in 1987; 579 in 1988) and the Problem Solving Bowls (207 in 1987; 442 in 1988). It should, however, be borne in mind that activities where participation is restricted, such as the Creative Experience and the Tsitsikamma Holiday School, or which were offered prior to the survey, for example the Futures' Conferences, would not be included in the above statistics.

In the following section an attempt will be made to establish why such a small number of schools offered intra-school Area Three enrichment and how this affected the morale of school co-ordinators, as also parents represented on the Western Cape Association of Gifted Children. The proposed withdrawal programme will also be assessed in the light of Critical theory.

7.4 Evaluation of the Area Three Programme

As already noted (table 7.2) statistics indicated that relatively few schools offered withdrawal programmes in 1988. There were a number of possible reasons for this situation, some of which have already been mentioned in (7.2). There have, however, been two additional factors that have precipitated this trend, namely the stricter application of the pupil-teacher ratio from 1986, and diminishing pupil enrolment. These factors caused the closure or amalgamation of smaller schools, while other schools were forced to combine

standards and absorb specialist posts such as librarians and gifted education school co-ordinators into ordinary class teaching. The consequences were noted in the 1987 and 1988 regional reports:

> ...once, the most popular form of provision for GCE (because of staff cutbacks, possible disenchantment with the withdrawal approach and difficulties with implementation) intra-school A3E is practised in fewer schools. (Gifted Education Co-ordinator, Cape Town 1987b)

> Because of the stricter application of the teacher-pupil quota it appears that intra-school enrichment is fast becoming a thing of the past, which will mean that pupils who had hitherto been accommodated in this way will most probably be deprived of a very important resource unless an alternative strategy is devised. (Gifted Education Co-ordinator, Cape Town 1988)

The above made it increasingly difficult for schools to offer pull-out programmes. This fact was highlighted during a discussion of primary school co-ordinators at the Teachers' Centre (Cape Town Teachers' Centre (11-09-87):

> RH The first person to go is the person that has to do with enrichment. My post has fallen away, yours has fallen away, you're being paid by your parents, so has Alixe [Lowenhertz's]...

> RJ ...But our main problem now at (name of school) is the cut-back in staff, and my post is falling away at the end of the year so I shall have to class-teach. And there is no way that I can handle full-time class-teaching and a gifted programme...

This state of affairs did not pass without comment. The body of parents representing the Western Cape Association of Gifted Children viewed with alarm, what appeared to them to be the phasing out of gifted education, and in an effort to encourage viable programmes in schools tabled, inter alia, the following proposals during the annual regional co-ordinators' meeting at

the Cape Education Department (Western Cape Association of Gifted Children 1989):

> 1. That schools actively identify gifted and talented children from Sub A and implement appropriate programmes or, at least, make flexible provision for gifted and talented pupils of all ages.
>
> 4. [That the Department] arrange for the institution of travelling teachers for application of the gifted and talented programmes in schools unable to use existing staff for this purpose.
>
> 5. [That the Department] promote greater flexibility in busing identified children to e.g. (a) Teachers' Training College for specific programmes in schools during school hours (b) other schools with active programmes, (c) a teacher specifically appointed for teaching of gifted and talented children.
>
> 6. [That the Department] bring about and co-ordinate a system of mentors for pupils with clearly identified needs for such special attention.

The extra staffing required by the above proposals was said to be beyond the means of the Department and so the regional co-ordinator took it upon himself to extend the inter-school Area Three programme by initiating a Mentor Resource Pool of parents and grandparents which was planned to go into operation in 1990.

Before the inter-school programme is discussed (7.5) it is necessary to look at the Area Three pull-out programme critically. At the heart of the Area Three withdrawal programme is the assumption that 'equal access' to enrichment opportunities through the mediation of a pre-task activity, would help ensure a more just dispensation for all pupils.

A.R. Jansen (reported in Karier 1976:136), writing about an analogous situation, namely occupational access, had the following to say about the rationale behind the 'equality of opportunity'-school of thought which is central to the Area Three identification model:

> We have to face it: the assortment of persons into occupational roles simply is not "fair" in any absolute sense. The best we can hope for is that true merit, given equality of opportunity, acts as the basis for the natural assorting process.

Critical theorists, however, would question the Liberal assumptions upon which 'opportunity theorists' such as Jansen base their models, preferring, instead, to see an alternative social order:

> Herein lies the crucial weakness of the argument. Given the current racist, economic, and socially elitist society where wealth, power and educational privilege are so unevenly distributed, what does it mean, then, to assume "equality of opportunity" and "hope" that "true merit" will somehow result from a natural assorting process"? (Taylor et al 1976)

In fact, looking at the political agenda of the Critical theorists, it is easy to understand how they might view with alarm the ameliorative nature of the Area Three identification procedure, fearing that it would slow down the theoretical historical process which they hope will bring about a truly egalitarian system. Unfortunately, absolutist views such as those held by Critical theorists - however ideologically satisfying to themselves - are often limiting and self-defeating. Pull-out programmes, although in certain respects, problematic do provide valuable opportunities which can be beneficial.

It is therefore necessary to reflect upon the viability of the proposed Eby pre-task identification process. To the researcher's knowledge, there is not one school making use of the procedures. Certainly at no time have pre-task activities been integrated as eligibility criteria for the inter-school programmes offered through the gifted education network. This suggests that the identification model presents an egalitarian facade; is cumbersome; and/or perceived with suspicion (i.e. generates extra work for the teacher and/or might precipitate

a problem if an academically weak pupil becomes eligible for pull-out).

Possibly more satisfactory would be the procedure adopted by Westerford High School whereby pull-out programmes are opened to all pupils who, after clearly being told what is required from every participant, are given the opportunity of choosing whether to enrol in the programme or not. The benefits of this approach are that it provides for equal access, is non-elitist and, by leaving the decision of whether to participate to each pupil, promotes maturity and autonomy.

7.5 The Area Three inter-school Programme

The regional co-ordinator's report (Gifted Education Co-ordinator, Cape Town 1988) echoed certain of the proposals made by the members of the Western Cape Association for Gifted Children (7.4) by making a call for a centralized Mentor Resource Network comprising parents and grandparents to facilitate as an additional inter-school enrichment resource. They also recommended the appointment of itinerant co-ordinators to fill the vacuum left by school co-ordinators being absorbed into ordinary classroom teaching.

Two existing Mentor Resource Network options, one consisting of an engineering course offered at Oude Molen Technical High School and a Creative Day convened by Alixe Lowenherz in conjunction with the Art Department of the Cape College of Education proved very successful. Last-mentioned, offered a programme modelled upon Brain Compatible principles (6.6). Selection of pupils to attend the Creative Day was left to schools who were encouraged to nominate pupils who demonstrated originality, rather than selecting pupils who had high intelligence quotients or earn high marks. The Engineering programme was specifically for pupils who had a technical orientation. The Creative Day :

> ...proved so popular that only 120 pupils from 21 schools could be accommodated. This meant that 10 schools had to be turned away. (ibid)

The Creative Day has since been extended to separate days for standards 2 to 5. These have also been over-subscribed, thus demonstrating that there is a clear need for such facilities.

Other inter-school options offered through the gifted education network have been the Futures' Conferences held in 1985 and 1986; the annual Problem Solving Bowls, and the Tsitsikamma Holiday School in 1987.

Mary Dewar (1986:82-5) stated that gifted education should be based upon relevant, grassroots, context-specific learning experiences where meanings and definitions can be negotiated. She continued that the potential value of gifted education:

> ...is directly related to the degree to which it is consciously linked to and contributes towards, an egalitarian social vision based upon social justice. (ibid 85)

The inter-school options have gone some way towards meeting these requirements. A brief review should help to support this view.

In 1985 high school pupils had the opportunity of attending the first Futures' Conference and selecting from ten workshops aimed at providing skills deemed necessary for future survival. These included, negotiation, creative problem solving, computer programming, team-work, intuitive incubation, personal growth, time management, cultural empathy and mind-body integration skills. In 1986 the emphasis of the Futures' Conference was on personal involvement by pupils in bringing about incremental change. Eleven South African megatrends were highlighted and pupils were able to choose from eleven workshops dealing with, inter alia, social, technological, rural and urban megatrends.

Furthermore an attempt was made at the second Futures' Conference to include pupils from other education departments. As a preliminary arrangement observers from the three other education departments were invited to attend. A steering committee comprising members from each department convened a

meeting of principals to set up networks from which a third Futures' Conference for pupils would emerge. For a number of reasons, the third conference failed to take place by the end of 1988. Problems included a turn-over of steering committee members; finding a suitable sponsor, a neutral venue, and compatible programme. The third futures' Conference is, however, planned for 1992.

Issues forming the focus of the annual Problem Solving Bowls have also developed from relatively abstract, static, futuristic themes to more fluid, open, immediate, social and problem-related issues that call for the involvement of pupils in specific, hands-on problem solving ventures. Problems which have been explored include urbanization, street children, ecology, entrepreneurship and education.

The Tsitsikamma Holiday School was another example of a relevant, context-specific learning experience. The Holiday School was a joint venture of the Cape Town, Parow and Worcester regions. At the close of the Holiday School, pupils were asked to write personal undertaking on practical things they planned to implement on their return home. These:

> ...ranged from helping a nearby orphanage with fund-raising to personal commitments to change prevalent attitudes vis a vis family and/or friends. (Gifted Education Co-ordinator, Cape Town 1987a)

7.6 Conclusion

Because of the revision in staff-pupil ratios, intra-school withdrawal programmes might in future only be viable in larger schools, although it is doubtful that the proposed Eby identification procedure will be employed to any great measure. A more appropriate approach might be to advertise pull-out programmes for all pupils, with clear indications about what would be required from participants.

Changing regional circumstances will mean that inter-school enrichment options will become increasingly necessary. The practical, hands-on, socially-orientated options that were

being offered seem to suggest that Area Three withdrawal is a valuable medium for helping initiate certain pupils into some of the issues facing South Africans.

CHAPTER EIGHT

THE AREA FOUR PHENOMENON

8.1 Introduction

Genius, is little understood. Even elements of the Four Area definition of giftedness (chapter 4) are inadequate to describe prodigiousness. A discussion of Area Four pupil-profiles submitted by teachers is shown to offer no clear picture of how such pupils might be identified (8.2). The point is made that the rare, elusive quality that is understood as genius cannot be reduced to discrete components and that it is therefore preferable to change epistemological lenses and to view intelligence and genius metaphysically as part of Deep Ecology (8.2). Teilhard de Chardin's model of the universe, introduced in chapter 2, is used as a framework within which to understand humankind as a function of the unfolding universe. Krishnamurti's understanding of intelligence as a function of the Ground is used to conceptualize genius as a by-product of a life grounded in authenticity or Being (8.3). Implications that such a view of genius holds for education are briefly discussed (8.4).

8.2 The Problematic Nature of Genius and its Provision within our Education System.

The so-called Area Four child refers to the pupil who might be classified a 'potential Einstein, Churchill, Buckminster Fuller' (Guide:10). It was assumed in the Four Area Guide (Guide:4) that Area four form a minority in schools, and that they require provision over and above what is offered through the Areas One, Two or Three enrichment programmes. It was

also assumed that these Area Four children might be easily identifiable. The contrary seems more often the case.

In the 1987 questionnaire, schools were requested to identify possible Area Four pupils. Co-ordinators were given very little guidance in their task, except the statement that the Area Four child is a 'potential genius'. Five primary school and twenty seven high school pupils were identified (Gifted Education Co-ordinator, Cape Town 1987b).

Early in the following year Dr C. Meintjes addressed all primary and high school principals on the subject of the Area Four pupil. Because not much was known about such pupils schools were again requested to identify such pupils and to submit a profile on each pupil. It was hoped that clear, general criteria that would assist in the task of identifying other such pupils would emerge from the survey. Ten schools responded to the request (refer Addendum C for an overview of selected responses). Unfortunately no clear picture emerged from the profiles:

> It is not easy to detect clear pointers from such a small sampling. Even traditional measuring instruments like IQ test scores do not reflect a clear picture. What, however, is interesting is that primary school co-ordinators have selected pupils who they felt were underachieving while all of the high school co-ordinators selected pupils who had achieved in some or other area. (Gifted Education Co-ordinator 1988b Addendum S)

A number of points raised in the above statement need further amplification. The first point that needs to be looked at will be the question of intelligence scores. It would appear that where available, teachers had made use of intelligence quotients as part of their profiles. However, contrary to what might have been expected, teachers did not select only pupils whose intelligence quotients were above 145. One pupil, for example, fell within the 120-129 range, two within the 130-139 range, three between 140-144, and only five (i.e. less than fifty per cent) were given as 145 plus. In this regard it is interesting to note that according to Simonton

(1984:49), high intelligence scores per se do not necessarily denote genius. He argued that if they did:

> ...in a population of two hundred million people or more there must be a group large enough to populate a small city bursting with intellects having the same power as Beethoven, Montaigne, Hegel or Darwin. And yet most of them never achieve fame. Evidently some other personality attributes intervene in the determination of creativity and leadership.

The second point raised in the regional co-ordinator's report above was that primary school teachers seemed more aware of their pupils' weaknesses such as underachievement, absent-mindedness, co-ordination and spatial problems, poor social skills; while their high school colleagues focused on their nominees' achievements: in local and national competitions and publishing, in positions of leadership, and in the field of academics. What needs to be asked is why the high school nominees had, without exception, all achieved success in some significant field(s); while, judging by the co-ordinators' comments, there were primary school nominees who might conceivably fail to achieve later in their school careers.

A possible explanation for this situation is that, on the practical level, high school pupils have had more time in which to prove themselves. It follows that teachers would tend to list their successes. What it could also mean was that high school teachers were less rigorous in their selection procedures than their primary school counterparts or, conversely, that high school teachers are not sufficiently empathetic with, or knowledgeable about their pupils' capacities and therefore only notice successful pupils. It might also suggest a far more ominous scenario, namely that pupils identified as promising in their junior years but who, for various reasons, underachieve as they move into the senior standards, slip into an obscurity out of which they possibly never emerge.

If last-mentioned is an accurate assessment of the situation then it points to serious implications for the

identification of Area Four children. Robinson (1984:26), quoting from L.S. Hollingworth, suggested that the last mentioned scenario is very likely, because many children who scored above 180 on the Stanford-Binet test:

> ...yielded tragic findings of underachievement, alienation, and suicide.

On the other hand, pragmatists such as Renzulli (4.9) and Eby (7.2) argue that because they view task commitment as an essential component of giftedness, such pupils are not truly 'gifted' in the complete sense of the word. The assumptions of the pragmatists have, however, been challenged by Brown (1984), who suggested that under-achievement and de-motivation might be indicative of an inadequate education system and not necessarily a symptom of limited pupil-capacity (4.9).

There are, however, numerous examples from history in which teachers have failed to identify potential genius. Keddie's research (6.4) has already been discussed, and reference was made to Werner von Braun and Albert Einstein (4.6). There was also the case of D.H. Lawrence, (Simonton 1984:74) who was placed thirteenth out of twenty-one students enrolled in a high school composition class. There are many more.

Two humorous stories are quoted to illustrate the problematic nature of identifying genius. The first concerns an executive who needs a secretary[35]:

> ...three people come in for an interview. The first one is a blond - pretty, of course. The personnel director does the questioning. "What's one and one?" he asks. "Why sir, one and one is two, of course," comes the reply. Next comes the second applicant, a practical-looking brunette. The same question is asked. "Well, it depends," she says thoughtfully. "One plus one is two, one times one

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[35] The story implies an understanding of Einstein's theory that the velocity of light is an absolute and, therefore, does not obey the usual kind of addition rules for velocity. C - c, for example, is not zero; c + c is not 2c. In both cases we get c. (Goswami 1979:413)

> is one, and one to the power of one is also one. and you can also make eleven out of one in the decimal system." The interviewer was impressed. The third applicant is Einstein. In response to the same question, Einstein answers, "Depends on what you are adding. I happen to think that for the velocity of light one and one makes one." His dumbfounded interviewers exchange looks of disbelief.
> Guess who gets the job? The blonde, of course. and not for her looks, but for her ability to give programmed answers. (Goswami 1979:413-4)

A second story underscores the point that parents' estimation of their childrens' giftedness is often subjective:

> Nasrudin's little son was prattling away: "Daddy, I remember the day when *you* were born."
> The Mulla turned triumphantly to his wife: "There you are, Kerina - surely that proves this little child of mine is a genius?" (Shah 1971:140)

There are those who believe that 'genius will out' and that it is therefore not important to identify or accommodate promising pupils; opponents to this view point to research that shows, for example, that half of the Nobel laureates in science were mentored (Simonton 1984:35); that almost all outstanding professional athletes received special attention, equipment, training in their youth (J.C. Gowan, reported in Davis and Rims 1981); that many people of genius had reportedly experienced 'crystallizing experiences' involving remarkable and memorable contact with persons and/or material within the field in which their talent was manifested (Walters and H. Gardner 1986), thus suggesting that early identification and nurturing is important.

However, part of the problem might lie in the fact that it is in the very nature of genius to be elusive and complex, especially during its formative years, and that formal instruments for identifying such children might be too crude to be of practical assistance:

> Their pedigrees, their early environments, their formal schooling, and their personalities provide no

> firm or reliable commonalities. What is clear is that intellect alone is not enough to explain a Shakespeare, Beethoven, or Newton. Intertwined with the accomplishments of such persons are the complexities of motivation, conviction, and a transcendent inspiration that somehow elevates the *psyche* above the commoner habits of mind and feeling. Learning and memory have, it would seem, very little to do with creativity at this level. (Eccles and Robinson 1984:148-9)

If, therefore, genius, as has been suggested, is an elusive, immeasurable quality should epistemologies not be switched in order to allow the phenomenon to be viewed, not in terms of its discrete empirical elements, but rather as already discussed (1.3.3., 4.2 and 4.4) as a function of Deep Ecology? This line of enquiry will be pursued in the following section.

8.3 Towards an Ecological Conceptualization of Intelligence and Genius as Grounded in the Human Condition.

In order to understand the concept intelligence and genius in terms of Deep Ecology and the human condition it will be necessary to draw together many of the points already discussed in this study. This will mean pursuing the idea that intelligence is an immanent quality which is manifested through gathering complexity.

Milan Zeleny and Norbert Pierre (1976:153-154) have questioned the conventional methods of researching complex systems by breaking them into smaller and smaller units until the resulting components are so tiny that at least one of them might be understood. Researchers cannot, they argue,

understand any autopoietic system[36] by studying the properties of the components, because the properties of the whole:

> ...are determined by the *interactions* between the components, that is, by its dynamic organization. (ibid 160)

Giftedness can also be regarded as an autopoeitic manifestation which, it is argued, can only really be understood if the traditional approach of reducing its complexity to discrete elements such as IQ, task commitment, academic success etc. is abandoned and, instead, the emergence of genius is viewed in its metaphysical context.

There have been various researchers who have attempted to move away from a reductionist view of genius, and although not seeing giftedness metaphysically, nevertheless have broadened their enquiry sufficiently to include other variables. One such theorist was Gruber (1986) who rejected the belief that gifts pre-exist, pointed out that both intense passion and consuming, prolonged effort are required for their construction. In support he observed that Mozart's earlier compositions lacked the depth of his later works. He also suggested there might be certain dispositions more compatible with highly creative work. He referred, for example, to Darwin's dreamy, vague, open disposition which enabled him to develop the theory of evolution; as against the hard-nosed, objective and analytic Thomas Huxley who, despite reportedly being more brilliant and versatile than Darwin (ibid 249), apparently exclaimed on hearing about Darwin's theories: 'Why didn't I think of that?' (ibid). A further intersecting variable that Gruber identified, is the Family *Weltanschauung*

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[36] 'Autopoietic systems are self-renewing, self-repairing, and unity-maintaining autonomous organizations of components capable of interactive linkages. Examples are cells, organs, organisms, and groups of organisms. Autopoiesis, or self-creation, characterizes all living organisms and their organizations, ranging from the macromolecular, unicellular and multicellular organisms to differentiated, self-perpetuating animal and human groupings' (Zeleny and Pierre 1976:150)

which he believed was often instrumental in leading certain people to believe that their lives would prove to be particularly significant. Because they believe in themselves such people set extremely high goals. Again, he referred to Darwin who apparently consciously saw himself as involved in transforming humanity's image of itself (ibid 259-60).

Two researchers who have broadened their enquiry even wider than Gruber, are Feldman and Benjamin (1986:301). Their references to 'system', 'interactions', 'intersections', coordination', 'forces' 'cultural and historical factors' seem to indicate that they are using an Ecological frame of reference which rests on the concept: 'co-incidence':

> Basically, this idea [i.e. co-incidence] "relocates" the existence of prodigiousness from inside the child (perhaps wired into the brain or nervous system, as is commonly thought) to an evolving system of interactions. Thus I believe that a prodigy is better seen as the dynamic intersection of a set of forces, only one of which is the child's talent, brain, or whatever. A continuing, near perfect coordination of precisely the right set of forces produces and sustains prodigious behaviour. These forces include the child's family, peers, teachers, and mentors, as well as cultural and historical factors.

Teilhard de Chardin's cosmology (2.3.3) seems to be saying that all life is involved in a process of simultaneous involution on to a geometric point along an Omega-referenced line or axis[37]. This converging vortex along which all life is constantly doubling back onto itself increases its concentration and complexity as it pushes forward its entire network to successive thresholds.

To describe one such threshold, namely life's evolutionary transition from animal to humankind which saw the birth of thought, Teilhard de Chardin used the analogy of a cone. He described how life's doubling back upon itself

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[37] Teilhard de Chardin's model is in many ways similar to David Bohm's enfolding-unfolding universe (2.3.3).

increases its intensity and complexity as if it were moving along decreasing segments of a cone until, at its summit, the cone suddenly disappears into a point where life undergoes a profound mutation:

> ...a critical transformation, a mutation from zero to everything...' (ibid 190)[38].

Teilhard de Chardin also used the analogy of water converting into steam without change of temperature (ibid 186-7):

> By the end of the Tertiary era, the psychical temperature in the cellular world had been rising for more than 500 million years. From branch to branch, from layer to layer, we have seen how nervous systems followed *pari passu* the process of increased complication and concentration. Finally, with the primates, an instrument was fashioned so remarkably supple and rich that the step immediately following could not take place without the whole animal pschism being as it were recast and consolidated on itself...No more was needed for the whole inner equilibrium to be upset. What was previously only a centred surface became a centre. By a tiny "tangential" increase the "radial" was turned back on itself and so to speak took an infinite leap forward. Outwardly, almost nothing in the organs had changed. But in the depth, a great revolution had taken place: consciousness was now leaping and boiling in a space of super-sensory relationships and representations; and simultaneously consciousness was capable of perceiving itself in the concentrated simplicity of its faculties. And all this happened for the first time. (ibid 187)

In 3.3 it was established that the Four Area Curriculum Extension and Enrichment Guide reflected the Deep Ecology epistemology. In the light of the Ecological perspective, evidence was found to confirm the theory that all life shares

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[38] There seem to be strong parallels in Buddhist thought. The first few lines of the, Prajna Paramita Hridaya, for example, seem to be describing the state in which zero and everything are one:

> Form here is only emptiness, emptiness only form. Form is no other than emptiness, emptiness no other than form (refer also Watts 1957:84)

an ontological commonality (1.3.3., 3.3., 4.4 and 4.5). It was then argued that humankind would be making a fundamental error of judgement if it were to view wo/men as individual, independent entities. More accurate, to concede that human minds are immanent, not only in their bodies, but in the larger Mind. The belief in an individual, atomistic, homunculus form of giftedness was also shown to be essentially flawed (4.2). It was also shown (2.4) that humans who are conscious of and accept their particularity as existential beings-in-the-world become, in Heidegger's words, 'Shepherds of Being'. Authenticity of Being, in Heidegger's sense characterized by an understanding of the essential oneness of life as manifested in each new moment.

The foregoing evidence should enable researchers to reconceptualize giftedness in a way that would confirm its collective, socially constructed, immanent nature (4.5).

Earlier in the present section Gruber was mentioned as having broadened research perspectives by suggesting that genius was the product of a Family *Weltanschauung*; a special psychological disposition; and an extraordinary passion and commitment over many years. Feldman and Benjamin, broadening the focus still further saw genius as the co-incidence of a number of forces: family, peers, teachers, culture and history.

What is presently being suggested is that Teilhard de Chardin's cosmology offers a model whereby genius can be viewed, not as the product of discrete, personal capacities, but as a function of the life process as it manifests in and through a particular person. This evolution which brought into being human reflection was described by Teilhard de Chardin (1966:189) as a 'formidable coincidence'[39]:

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[39] It is interesting to note that Feldman and Benjamin above, use the same term 'co-incidence' in much the same sense. Whether their use of the term is mere 'coincidence' or whether they are in fact indebted to Teilhard de Chardin is unclear, as there is no reference in their essay to his work.

> ...formidable coincidence: - a knot whose strands have been for all time converging from the four corners of space.

The same concept can be used to describe the coming into being of genius. Genius, can therefore be viewed as a function of the Cosmos, the Ground, Mind in much the same way in which Chew conceptualized quark patterns as the necessary consequence of gathering complexity, and not independent, physical constituents of hadrons (Capra 1988:56).

In 2.3.3 the different ways in which to conceptualize God, the Absolute, the Ground, or what Aristotle called the First Cause, the Unmoved Mover, Pure Mind was introduced. Krishnamurti (1985:43) described God as, '...the ground upon which everything exists, space...energy, emptiness, silence'. David Bohm said of it: '...it is out of that everything arises, and into which it dies' (ibid 45). In the following dialogue Krishnamurti suggested that intelligence - like love, compassion, order - is a function of the Ground, and that Intelligence is not, as is ordinarily accepted, something which is personal (ibid 261-263):

> K: That's just it. Love is not yours or mine; it is not personal, not something that belongs to anyone; love is not that.
>
> DB: That is an important point. Similarly you were saying that isolation does not belong to any one person, although we tend to think of isolation as a personal problem.
>
> K: Of course. It is common ground for all of us. Also, intelligence is not personal.
>
> DB: But again, that goes contrary to the whole of our thinking, you see.
>
> K: I know.
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> DB: Everybody says this person is intelligent, and that one is not. So this may be one of the barriers to the whole thing, that behind the ordinary

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everyday thought there is a deeper thought of mankind, but we generally feel divided, and say these various qualities either belong to us, or they don't belong to us...

K: Earth is not English earth, or French earth, earth is earth!

DB. I was thinking of an example in physics: if the scientist or chemist is studying an element such as sodium, he does not say it is his sodium, or that somebody else studies *his* sodium. And of course they compare notes, etc.

K: Quite. Sodium is sodium.

DB. Sodium is sodium, universally. So we have to say that love is love, universally...

K. Compassion is not 'I am compassionate'. Compassion is there, is something that is not 'me'.

DB: If we say compassion is the same as sodium, it is universal. Then every person's compassion is the same.

K: Compassion, love, and intelligence. You cannot have compassion without intelligence.

DB: So we say intelligence is universal too!

K: Obviously.

DB: But we have methods of testing intelligence in particular people, you see.

K: Oh, no.

DB: But perhaps that is all part of the thing that is getting in the way?

K: Part of this divisive, fragmentary way of thinking.

If Krishnamurti is correct, then individual minds, as Eliot realized in his poem East Coker (2.3.3), cannot be said to reach into and possess the Ground:

> ...for hope would be hope of the wrong thing...[and] love would be love of the wrong thing...

In the same way that individual minds cannot be said to reach into and possess humility, love, or even intelligence. More accurate to see the Ground, Eliot's 'darkness of God' operating through those 'minds' which have achieved a sense of autonomy; who are grounded in Being; which have become, as it were, mediums, vessels partaking in the movement of intelligence[40]. Intelligence then operates. And it is an intelligence grounded in particularity, which translates itself from moment to moment in terms of the particular person's capacity, be it archery, mathematics, music, poetry. Bateson (1972:469), quoted from Bach to describe the operation of genius:

> It is told of Johann Sebastian Bach that when someone asked him how he played so divinely, he answered, "I play the notes, in order, as they are written. It is God who makes the music." But not many of us can claim Bach's correctness of epistemology - or that of William Blake, who knew that the Poetic Imagination was the only reality. The poets have known these things all through the ages, but the rest of us have gone astray into all sorts of false reifications of the 'self' and separations between the 'self' and 'experience'.

Genius described in this way, explains the "aha" experience; the burst of creativity; insight; inspiration; timelessness; the perfect arrow-shot of the Zen Master, Kenzo Awa:

> At last the Master rose and made me a sign to follow him. The practice hall was brightly lit. The Master told me to put a taper, long and thin as a knitting needle in the sand in front of the target, but not to switch on the light in the target sand. It was so dark that I could not even see its outlines, and if the tiny flame of the taper had not been there, I might perhaps have guessed the position of the target, though I could not have made it out with any precision. The Master 'danced' the ceremony. His first arrow shot out of dazzling brightness into deep night. I knew from the sound that it had hit the target. The second arrow was a hit, too. When I switched on the light in the

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[40] Such a mind, becomes that movement, according to Bohm and Krishnamurti (Krishnamurti 1985:151). Refer also 2.3.

> target-stand, I discovered to my amazement that the first arrow was lodged full in the middle of the black, while the second arrow had splintered the butt of the first and ploughed through the shaft before embedding itself beside it. I did not dare to pull the arrows out separately, but carried them back together with the target. The master surveyed them critically. 'The first shot', he then said, 'was no great feat, you will think, because after all these years I am so familiar with my target-stand that I must know even in pitch darkness where the target is. That may be, and I won't try to pretend otherwise. But the second arrow which hit the first - what do you make of that? I at any rate know that it is not "I" who must be given credit for this shot. "It" shot and "It" made the hit. Let us bow to the goal as before the Buddha!' (Herrigel 1968:82-3)

It also shows why it is problematic for teachers to identify genius in the children whom they teach. For regularly genius is mistaken for cleverness, while the two processes are entirely different.

This explains why there are so few people of genius. And it follows that if genius is, as hypothesized, that which manifests *through someone*, rather than being solely a *product* of someone's individual capacity then it is imperative that ways be found of educating children appropriately, therefore the present investigation will be brought to a close in the final section with a few brief comments about the role of education with regards the Area Four child.

8.4 Education and the Area Four Child

To bring into being a system able to nurture intelligence as described in 8.3 is a challenge. Meintjes (1988b:4) made the point that it is an open question whether any education system can do justice to the so-called Area Four pupil. In fact, he suggested paradoxically that the system necessary for these children might be, 'working outside the system'. As Ken Alston (quoted in Gifted Education Regional Co-ordinators'

report 1988) commented, '...we are barely scratching the surface'.

Earlier (8.3) Gruber, Feldman and Benjamin pointed out the great many factors which constitute prodigious behaviour. A vital ingredient, Gruber suggested was a disposition consisting of a dreamy openness, intense passion and a consuming drive that endures over a long period. Herrigel (1968:85-6) described how the many years of schooling under his Zen Master brought him to the point where 'he' no longer did the shooting; and, instead, 'It' (Zen, Spirit, Genius) shot him:

> During those weeks and months I passed through the hardest schooling of my life, and though the discipline was not always easy for me to accept, I gradually came to see how much I was indebted to it. It destroyed the last traces of any preoccupation with myself and the fluctuations of my mood. 'Do you now understand', the Master asked me one day after a particularly good shot, 'what I mean by "It shoots", "It hits"?'
> 'I'm afraid I don't understand anything more at all,' I answered, 'even the simplest things have got in a muddle. Is it "I" who draws the bow, or is it the bow that draws me into the state of highest tension? Do "I" hit the goal, or does the goal hit me? Is "It" spiritual when seen by the eyes of the body, and corporeal when seen by the eyes of the spirit - or both or neither? Bow, arrow, goal and ego, all melt into one another, so that I can no longer separate them. And even the need to separate has gone. For as soon as I take the bow and shoot, everything becomes so clear and straightforward and so ridiculously simple...'
> 'Now at last', the Master broke in, 'the bow-string has cut through you.'

It is interesting to note in the above description, how the former Cartesian categories such as the 'I', 'bow', 'arrow', 'the goal', the 'spiritual' and the 'corporeal' all merge into one another in such a 'straightforward and...ridiculously simple' way.

It could be speculated from the above description that children might only achieve that state where genius operates through them once they have found some all-consuming passion

which will drive and sustain them. If this is so, then it is necessary to look at what educational dispensation pupils should be receiving.

Education, for Plato, was to lead pupils to feel instinctive pleasure at beauty, love, goodness, through art, poetry, music (Armstrong 1965:55). To achieve this, he believed:

> ...we must reject the conception of education professed by those who say that we can put into the mind knowledge that was not there before - rather as if they could put sight into blind eyes. (Plato 1963:283)

Instead, Plato believed that the teacher acted as a midwife to help children discover virtue by which was meant the:

> ...full and immediate realization, sight or intuition, an opening or turning of the "eye of the soul" to a direct vision of the Good. (Armstrong 1947:30).

There are strong parallels between what Plato is advocating and the process through which the Zen master took Herrigel, above. Furthermore, it is important to realize that Plato saw such a process as a strenuous, all-consuming programme lasting until approximately fifty when, finally, the Guardians of the State, namely those:

> ...who have the greatest skill in watching over the interests of the community...intelligent and capable...not easily mislead...[able to] stand up to pain and suffering [are chosen]. (ibid 157-9)

Teilhard de Chardin saw an extended education spanning two distinct phases, the first of which is described below:

> Normally the soul that wishes to belong firmly to Christ must make ready in itself, as the basis of its supernatural perfection, an abundant matter for sanctification, a rich nature. Science, the arts, industry, social activity - all these are necessary if we are to offer worthy material for Christ's influence...[for] the soul in the first stage of its evolution in Christ, plunges into created things.

> There, it allows itself to be swept along by the life-given passion for enquiry, for discovery and creation. (1973:27-8)

The final phase, he believed, could not continue indefinitely in the direction described above, because it would inevitably reach the point of the vortical cone (8.3) where it metamorphosised in a way that strongly resembles Herrigel's experience described earlier:

> This is the hour of the specifically Christian operation, when Christ, while preserving in man the treasures of human nature, empties him of his egocentricism and takes his heart in order that Christ must grow greater while I grow less (ibid:29)

School is only a small step along the path to the quality of mastery described above. To achieve excellence, Plato and Teilhard de Chardin recommended, between them, a rich, varied, moral, mental, emotional and physical education that would both expose children to the many possibilities that life has to offer, yet introduce the realization that mastery is a long and arduous journey. Such a person has experienced the sense of 'we' or 'Spirit', not through the mediation of *das Man* (2.4), but as a function of her/is authenticity as grounded in Being.

If, therefore, the eighteen children selected by schools (9.2) are, as their teachers believe, potential prodigies, they and others like them will gradually need to realize that true genius will only move and operate through them at that critical point where, as Teilhard de Chardin said, zero mutates into everything. It is at that point where mind experiences, what Krishnamurti described as, 'this extraordinary quality of emptiness' (2.3), that their personalities, egos, ambitions will dissolve and "It" come into being.

The journey is essentially spiritual. And those that take it will become truly indivisible (2.3), Shepherds of Being, our Guardians.

8.5 Conclusion.

It was shown that intelligence and genius, by its very nature, cannot be described or conceptualized by reducing it to discrete components. As argued throughout the study, intelligence (and, therefore, genius) should rather be seen as an immanent quality manifesting through those humans grounded in Being. This being true underlines the importance of providing all children with a support nexus consisting of family, friends, resources etc; a varied, dereified, rich curriculum which provides opportunities for pupils to negotiate reality. It also underlines the responsibility that each individual child bears to develop personal characteristics such as openness, diligence, passion, courage, honesty, clarity which will help her/im to lead a life grounded in particularity and guided by an inner vision, and not mediated by *das Man*.

CHAPTER NINE

SUMMARY AND CONCLUSION

Because of the nature of the topic, research into gifted education has tended to be partisan. Those in favour of gifted education have argued that if pupils are given the opportunity to grow their full individual potential, the benefits for the wider community will be enormous. Those in opposition have argued that gifted education further stratifies an already stratified society.

In order to avoid a simplistic *either...or* view the symbolic worlds represented by each viewpoint were explored. Those in favour of gifted education were shown to be affiliated to the Cartesian world-view. Those in opposition to gifted education were shown, very often though not exclusively, to be affiliated to a counter world-view, namely the Socialist epistemology.

Although ostensibly different from one another, each symbolic world was shown to be based upon a dualistic, fragmentary view of the world. The Cartesian world-view was based upon the assumption that each human ego was separate. This view led inevitably to a fragmentary view of reality in which the 'I' was pitted against the 'he', 'she' or 'it'. The Socialist world-view was essentially similar to the Cartesian epistemology. By broadening the categories from the personal to the collective, from the 'I' to the 'we', all that in fact changed was that the arena switched to 'we' versus 'them'.

Although it is often assumed that the reality 'out there' is aboriginal it was shown that symbolic worlds are really only approximations of an assumed Noumenal reality. Both the Cartesian and Socialist epistemologies were shown to be informed by the assumption that reality was constituted from

discrete elements. However, research was shown to suggest that reality does not consist of discrete elements but is fundamentally whole, so what was assumed to be a discrete entity or event is in fact a manifestation of gathering complexity. An understanding and appreciation for the ecological oneness of existence was seen as the basis of the Deep Ecology epistemology.

In the spirit of Deep Ecology ways were sought in which to avoid a reductionist, sectarian approach to research into gifted education. Accordingly, the existential human condition was explored with reference to each epistemological world-view, thereafter the Guide to schools, the definition of giftedness, and the Four Areas making up the Four Area Curriculum Extension and Enrichment model were researched through varying permutations of the Cartesian, Socialist and Deep Ecology epistemologies.

The ideological bias of the Four Area Curriculum Extension and Enrichment Guide for schools was analyzed and found to reflect the Deep Ecology epistemology. The philosophical statement, goal and aims articulated in the guide were reworked in order to merge all three epistemologies into a statement of intent grounded in the existential human condition.

The traditional Cartesian, homunculus view of giftedness was shown as inadequate. In contrast, empirical and theoretical evidence was presented in support of the Four Area definition of giftedness, which was shown to be essentially egalitarian, open-ended, flexible and practical.

The Area One programme was criticised for legitimizing a context-free, technicist form of consciousness. An integrated Area One programme grounded in an understanding of the existential human condition, comprising skills' development courses, supplemented by cultural literacy programmes which have also been contextualized within subject domains was recommended.

Reasons for the unpopularity of the Area Two programme as recommended in the Four Area Guide were analyzed. The problems of successful differentiation were discussed. In view of the perception that Area Two enrichment would only come into its own once the curriculum had been addressed, various interpretations of 'curriculum' were explored. The point was made that appropriate curricula would only emerge once teachers themselves became aware of the limitations of their own epistemological orientations; became culturally literate; had a clear understanding of the human condition; saw children not as passive absorbers of facts but as active learners; and understood the nature of knowledge as being a negotiable quality. The Area Two Laboratory action research programmes, although limited in scale, were nevertheless shown as having relevance to the broader education community as a source of new ideas and programmes.

The intra-school Area Three programme was shown having limited growth potential due to the stricter application of pupil-staff ratios. The inter-school Area Three programme, in contrast, was seen as having an important role to play in sensitizing pupils to the broader socio-political issues in such a way as to stress personal responsibility and accountability. The identification of pupils for participation in such activities was however shown to be problematic but the point was also made that identification would become less of an issue as a larger choice of programmes appealing to a wider cross-section of the pupil population became available.

The problematic nature of genius was discussed, with particular reference to provision for the Area Four child. It was shown that genius is best understood metaphysically, grounded in the human condition, as a function of gathering complexity.

In conclusion it can be said that the Four Area Curriculum Extension and Enrichment model is contextually appropriate, flexible and an important medium for promoting

curriculum innovation and the enrichment of all South African children. This is borne out by the clear endorsement of the model by the majority of principals and co-ordinators in Cape Education Department schools in the Cape Town region; by the fact that, given the refinements recommended in the body of this study, the model provides for practical, creative opportunities which can benefit all South African pupils; and because it is formed around a conception of intelligence, giftedness, genius which is non-political, empirically verifiable, open-ended and, in particular, epistemologically veracious.

Possible fields of research suggested as a result of this study include:

- the implication of epistemological world-views on research into other aspects of education

- study of the human condition as it relates to the teacher in her/is world;

- study into the existential world of the pupil in the classroom;

- the development of a practical, flexible teaching resource or programme that would encourage teachers to integrate basic Area One skills and cultural literacy into ordinary class teaching;

- the development of indigenous, dereified, fluid, ecologically harmonious Area Two subject curricula;

- exploration into any of the Area Two Laboratory School action research programmes: Brain Compatible Education, Correlated Differentiated Group teaching, Magnet classes, Compacting, Alternatives to 'Chalk and Talk';

- the development of appropriate, challenging, relevant Area Three programmes suitable to a broad cross-section of pupils;

- an inquiry into the metaphysics of intelligence.

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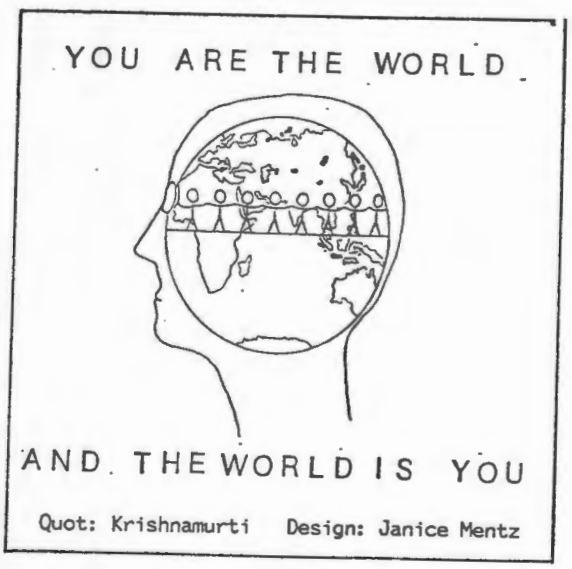
GIFTED CHILD EDUCATION

SENIOR PRIMARY AND HIGH SCHOOLS

CREATING AN EFFECTIVE
PROGRAMME TO PROMOTE GIFTED
AND CREATIVE BEHAVIOUR



This Guide attempts to answer a series of fundamental questions:

CAPE TOWN TEACHERS' CENTRE
KAAPSTADSE ONDERWYSERSENTRUM

Philosophy of the Cape Education Department Gifted Child Programme:

The GCE programme of the Cape Education Department acknowledges the God-given unique values, needs and talents of every pupil.

The ultimate goal of the programme is to develop within the pupil a desire for excellence and a sense of individual responsibility to the school and to a changing society.

Goal of the Cape Education Department G.C.E Programme

To encourage children to function with competence, integrity, and joy as active, independent, creative and productive people in their society; and so to fulfil their potential and attain their aspirations.

Aims of the Cape Town Regional G.C.E Programme:

1. To promote an understanding of what is meant when we talk of 'giftedness'.
2. For every teacher to see his/er importance in promoting gifted behaviour in all the pupils in his/er care.
3. For every school to create a G.C.E. system or structure that will provide for the needs of its pupils.
4. To promote skills' training through school-based staff-development programmes.
5. To provide curricular back-up facilities through the Cape Town Teachers' Centre G.C.E. In-service Network.
6. To promote an understanding of brain physiology and chemistry in the hope of affecting brain compatible education
7. To help towards promoting a sensitive, holistic education that will provide opportunities for individualization.

These guidelines are a response to a need for clarity,direction and structure, especially in view of the ongoing teaching skills' inset and staff development programme that is to be initiated early in term 4, 1986.

My thanks to Mr J. Goss (Chief Superintendent: Education); Dr C. Meintjes (Superintendent: Education, Gifted Education); my immediate superior, Mr J.X. Munnik (Head: Teachers' Centre); all my colleagues: Regional Co-ordinators, study group Convenors and members (see page 12); Mr D. Sleigh, who kindly helped with the Afrikaans version;and my wife, Janice, for her clarity.

These guidelines form part of a directed, co-ordinated programme for curriculum innovation that consists of:

(i) an ongoing teaching skills' in-service programme to be undertaken by the Laboratory Schools during the final term of 1986, and throughout 1987;
(ii) the initiation of self-trained voluntary inset and staff development teams available, on invitation, to assist schools in their staff development programmes;
(iii) Individual assistance to all schools (Pre Primary to High) with their G.C.E. Programmes.

Hendrik Jeremy Mentz

HENDRIK JEREMY MENTZ
(21-06-1986)

Question 1

What is a G.C.E Programme?

A Gifted/Creative/Talented (G.C.E) Programme is a closely co-ordinated multi-faceted organizational structure within the macrostructure of an effective individual school system.

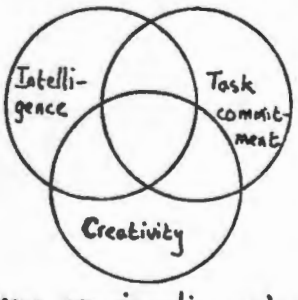
Question 2

What do we mean by the term, 'gifted'?

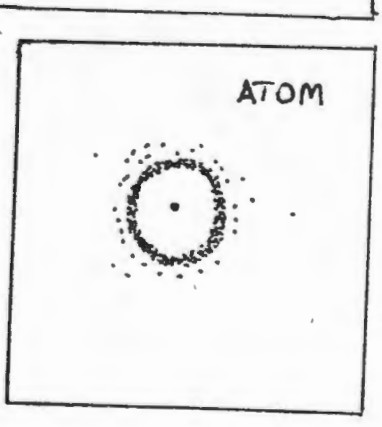
Because 'giftedness' is such an extremely nebulous and elusive state to pin down ('to the Yanomamo Indians...giftedness is possession of the skills of a great hunter and warrior; to para-psychologists, it is psychic ability; to Suzuki violin teachers, it is musical talent...')(1) it might possibly be wise to reserve the term 'gifted' to adults 'who have contributed products that have had an impact on civilization or who have played roles as change-makers'(2). For our purposes, therefore, the following parameters should help to give us a working definition of what we mean when we talk of 'giftedness':

* giftedness is a variable present in all people;
* giftedness usually manifests itself in a specific area (refer (3));
* giftedness is a potential that can be nurtured;
* giftedness is a relative term;
* lastly, we should avoid speaking of a gifted pupil, but rather acknowledge that certain people, in certain circumstances, and at certain times...when the three areas: intelligence, creativity and task commitment are in alignment, and in focus---elicit, what Renzulli would term, 'gifted behaviour' (4)

Joseph Renzulli's 3 Rings' Definition of Giftedness



When the above 3 areas are in alignment and in focus, the person elicits gifted behaviour. This happens in certain people, at certain times and in certain circumstances.



Question 3

If it is so difficult to pin down what we mean by the concept 'gifted', what exactly is the role of a G.C.E. Programme at a school?

Based, loosely, on the Renzulli model, an effective G.C.E. Programme at a school should operate on three levels (see below and overleaf for graphic representation).

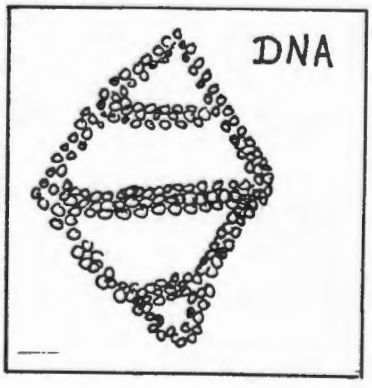
Area 1 : at this level all pupils in a particular standard should receive training in basic creativity, problem-solving and research skills. This is the responsibility of the G.C.E. co-ordinator or, indirectly, via the language or guidance teachers. (For further details please refer to question 4, page 6)

Area 2 : at this level we are concerned with, c. the top 10% in every subject in every standard. Every subject teacher responsible for a pupil who falls c. within this 10% category is responsible. (For further details please refer to question 5, page 7)

Area 3 : at this level certain (NOT the same !) pupils withdraw for certain activities at certain times. The co-ordinator and his organizing committee is responsible for drawing up appropriate modules that will cater for Area 3 enrichment. Pupils should have to demonstrate that they have the motivation (task commitment), creativity and talent to benefit from such a module. Enrolment should be open to all pupils. (For further details please refer to question 6, page 9)

Area 4 :

Because of the built in open-ended nature and flexibility of Area 1, 2 & 3 enrichment, almost every pupil in a school with specific needs and gifts should be able to be accommodated in some or other fashion. However, there might be a pupil in your school who, because of exceptional needs and brilliance requires even more than the school's Area 1,2 & 3 Programme can offer. It is sometimes extremely difficult to identify this pupil, especially if his/er marks might in no way refelct his/er dazzling capacities. We are thinking of a potential Einstein, Churchill, Buckminster Fuller. Area 4 Enrichment requires all the teachers of such a pupil meeting on a regular basis to create, monitor and evaluate a holistic individualized programme.



FOUR AREAS OF ENRICHMENT

AREA Y

AN INDIVIDUAL OF EXCEPTIONAL POTENTIAL IN GENERAL OR IN A SPECIFIC AREA WITHDRAWN FOR SPECIAL NEEDS

AREA X

CHANGING GROUP OF PUPILS WITH POTENTIAL WITHDRAWN FOR SPECIAL ACTIVITIES

CHANGING GROUP OF HIGHLY G/C/T PUPILS WITHDRAWN FOR SPECIAL ACTIVITIES SUITED TO SPECIFIC GIFTEDNESS

CHANGING GROUP OF G/C/T PUPILS WITHDRAWN FOR INTER-SCHOOL ACTIVITIES

AREA Z

TOP 5% PUPILS IN EVERY SCHOOL SUBJECT

AREA 1

ALL PUPILS RECEIVE TRAINING IN CREATIVITY, PROBLEM-SOLVING, ENTREPRENEURSHIP, FUTURISTICS, RESEARCH SKILLS AND LIFE SKILLS

Graphic: Alixe Lowenherz

CEL

Question 4

How do we go about initiating/adapting a Area 1, G.C.E. Programme in our school?

Step 1

The school decides in what standards creativity, problem-solving, research and life skills' training will specifically be taught.

Step 2

The school decides which teachers will be responsible for the training process. Possible alternatives:

* the G.C.E. co-ordinator is specially timetabled to teach specified standards or classes;
* the G.C.E. co-ordinator works with certain teachers (i.e. language and/or guidance teachers) to introduce these skills during lessons;
* a combination of the above.

Step 3

Timetable specific periods for skills' training.

Step 4

Staff development: gradually the co-ordinator introduces these skills to all staff members through individual contact, at subject meetings, or through staff development programmes so that these skills can be contextualized during subject teaching.

CURRICULAR BACK-UP FACILITIES PROVIDED BY THE CAPE TOWN TEACHERS' CENTRE G.C.E. INSET NETWORK

* An ongoing teaching skills' in-service programme (including creativity, problem solving, research and life skills' workshops and lectures on brain physiology, chemistry and brain compatible education) will be conducted inter alia by the Primary and High G.C.E. co-ordinators of the Laboratory Schools, throughout 1987 at the Cape Town Teachers' Centre. These programmes will be open to all teachers, who are warmly encouraged to attend.
* Teacher-training teams will be available for school-based staff development programmes as from 1987.

Question 5

How do I go about initiating/adapting an Area 2, G.C.E Programme in our school?

Step 1

Refer overleaf to diagram: Creating a Structure/System that will provide for a G.C.E Programme within the Macrostructure of an Effective School System.

Step 2

At the of each year (to be confirmed the following year), each class teacher, subject or standard grouping (depending on the circumstances and size of the school) identifies the pupils who in their minds have demonstrated gifted behaviour.

Step 3

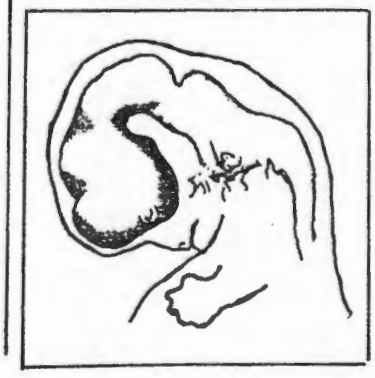
The school's talent-pool list (indicating areas of aptitude) is drawn up from all the subject, class or standard lists. This list is circularized to each teacher who keeps a copy in her/his record book.

Step 4

Implement a system (devised by E. Ungerer) for the school that will provide for the needs of these pupils in their classroom:

(i) give one liaison teacher per standard or subject grouping the responsibility of seeing to the needs of the pupils on the talent-pool list in each standard or subject grouping. Each group decides:
* to include at least one aspect of G.C.E education on every agenda of every subject or standard meeting;
* that each teacher commits him/herself to prepare at least one lesson every week with talent pool pupil(s) in mind;
* to share successful lessons during group meetings;
* to keep regular details of these lessons in resource files;
* to create a subject resources' file.

(ii) Arrange a regular meeting when the G.C.E co-ordinator can meet the liaison teachers so that there can be inter-group communication and feedback and, by implication, a raising of consciousness throughout the entire school.

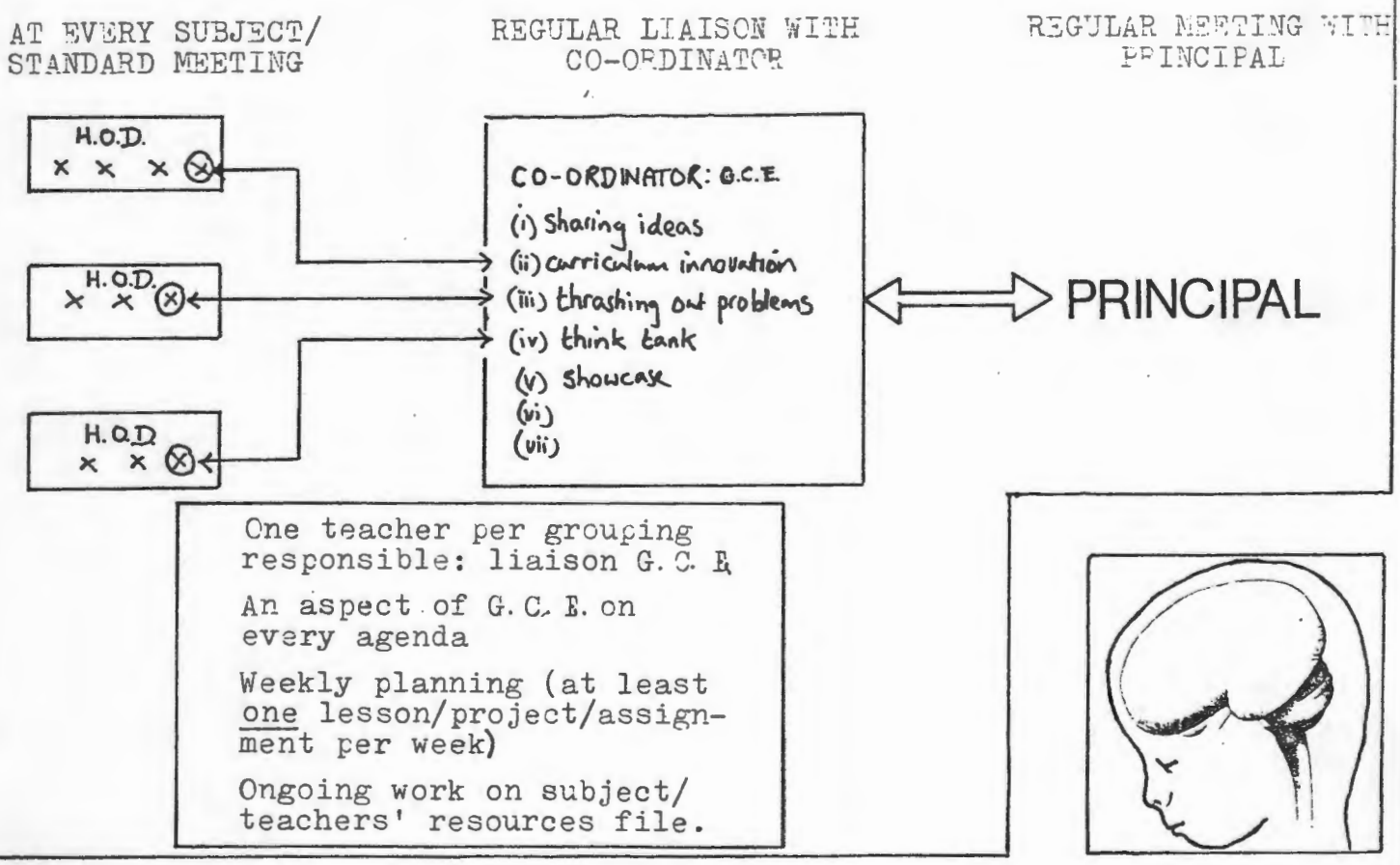


(iii) Regular meetings between the Principal and Co-ordinator so that the Principal can be be kept informed of:
* curricular developments within the school;
* problems that need attention;
* effective teaching by individual members of staff;
* progress of individual pupils.

CURRICULAR BACK-UP FACILITIES PROVIDED BY THE CAPE TOWN TEACHERS' CENTRE G.C.E INSET NETWORK

Area 2 Enrichment requires the application of sound group teaching and questioning skills. Self-trained voluntary inset teams of serving teachers are available, on invitation, to assist schools in their own Area 2, staff development programmes. The following staff development packages are offered to schools from 1987:
* group teaching skills;
* teaching mixed ability classes;
* questioning skills.

CREATING A STRUCTURE/SYSTEM THAT WILL PROVIDE FOR A G.C.E. PROGRAMME WITHIN THE MACROSTRUCTURE OF AN EFFECTIVE SCHOOL SYSTEM



Question 6

How do I go about initiating/adapting a Area 3, G.C.E Programme in our school?

Orientation

In many cases Area 3 activities already exist (specific pupils trained to participate in Olympiads, Problem Solving Bowls and Expos). Area 3 activity differs, however, from the conventional pull-out system (where an insular pupil-group were enriched--no matter their specific areas of aptitude) in that it is a more fluid, modular form of withdrawal where certain pupils withdraw for certain activities at certain times.

Entry into any specific module is dependent upon demonstrated ability by means of pre-task identification. 'This identification system is a critical component of the programme because it simultes "real life" conditions of goal attainment and reward for achievement. It requires children to:

* actively seek entry into the programme;
* behave in an independent manner to complete the requiremenmts of entry;
* demonstrate ability, creativity, and task commitment by producing a simple product.'(5)

Step 1

The G.C.E Co-ordinator and his team decide on the Area 3 modular options for the coming year. Permutational structures include:

* the co-ordinator draws up and offers a number of Area 3 modules (these can, yet need not be -subject based);
* the co-ordinator and special volunteer-teachers draw up a series of Area 3 modules (these can, yet need not be specifically-subject based);
* subject or standard heads work with the co-ordinator to draw up subject-based Area 3 packages;
* outsiders are called in and offer specially designed modules;
* particularly able pupils are invited to compile and present modules.

Step 2

All teachers involved in Area 3 modules are appropriately timetabled.

Step 3

The school (depending on the permutational options outlined above) decides on minimum requirements for eligibility to any proposed Area 3 module.

Step 4

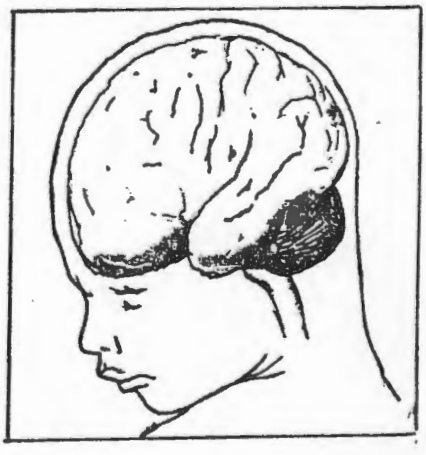
Presenters compile outline synopses of their module(s) together with the prescribed pre-task activity. (See attached Addendum A)

Step 5

Modules are advertised on G.C.E notice boards, during assemblies, in classes etc.

Step 6

Pupils apply by carrying out the prescribed pre-task activity.



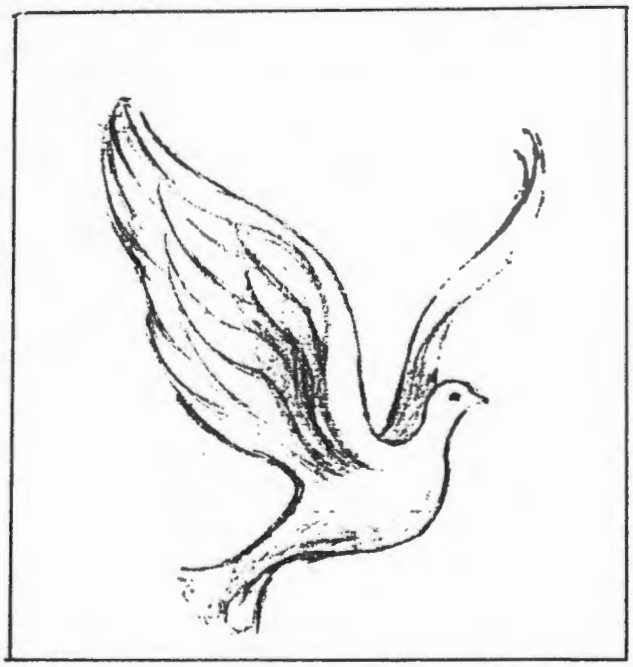
Step 7

Each pupil's pre-task activity is evaluated with the child so that s/he can see what s/he has done well and what s/he can improve. 'Students are eligible for the unit if their products meet the standard set by the presenter. Children who fail to meet the programme's standards should be given an opportunity to make necessarry revisions and resubmit their products within a specific time. This allows students to benefit from critical feedback without penalty...it (also) gives students an opportunity to demonstrate independence, motivation, and ability (all important parts of bahaviour we are trying to develop) by redoing and improving the original effort. Some children will respond with increased energy and enthusiasm and go on to outshine their peers. Others will choose not to redo their initial effort, but they will recognize it was their own choice not to reapply' (6)
(see Addendum B for an axample of a pre-task evaluation sheet)

Question 7

How does one go about initiating an Area 4 Programme?

If you have an Area 4 pupil in your school, it is important that all his teachers meet on a regular basis to create, monitor and evaluate an individualised programme. Various options open to the school include teacher mentors, outside mentors, individualised horizontal enrichment within the general school curriculum, individualised research outside the school curriculum; subject or standard acceleration.



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(3) Gardner,H. Frames of Mind: the Theory of Multiple Intelligences; Heinemann, London, 1983.
(4) Renzulli,J. Revolving Door Identification Model Creative Learning Press, Mansfield, 1981.
(5) Eby,J.W. Developing Gifted Behaviour Educational Leadership, April 1984, p. 36.
(6) Eby,J.W. ibid. p. 38-9.

Overview of illustrations used in these Guidelines:

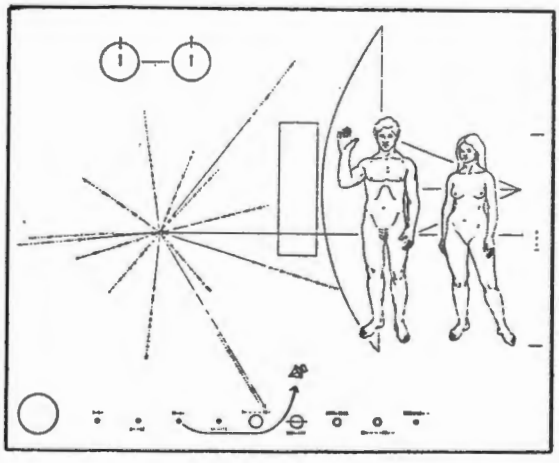
'You are the World' (p. 1): graphic, created and designed by Janice Mentz to symbolize the profound inter-relatedness of all life, to underline the individual's responsibility and accountability. The quotation is taken from Krishnamurti,J. Penguin Krishnamurti Reader Penguin, Harmondsworth.

Inner and outer space (pp. 2-5 & 12-14): these illustrations attempt to depict the planes of existence in inner and outer space, and to place man in time and space. They were created by Alexia Bonnici, a pupil of Camps Bay High School and were used in the 1983 school magazine.

Embryonic development of the human brain (pp. 6-9): page 6: after 3 weeks of gestation; page 7, after 7 weeks; page 8, after 4 months; page 9, in a newborn infant. Sagan,C. The Dragons of Eden Hodder & S. Lond. (198)

The dove (p. 10) 'is a symbol of the spirit of life and of light; of the soul; the passing from one state or world to another; chastity, innocence, gentleness, peace. The dove with an olive branch is a symbol of peace, as well as of renewal of life. It is also associated with the descent of power.' The Phoenix, the Dove and the Phoenix (p. 21) Odyssey 10,2, June 1986.

Copy of the small gold anodised aluminium plate (p. 11) attached to the side of the Pioneer 10 spacecraft that left the solar system in 1974. It is hoped that the easily understood scientific language will communicate information about the builders of the spacecraft. Marten,M. et al (ed); World within worlds; a journey into the unknown Secker & Warburg, 1977.



PARTICIPANTS IN THE ONGOING INSET AND STAFF DEVELOPMENT PROGRAMMES

LABORATORY SCHOOLS' INSET COMMITTEE (DR J. GIBBON: CHAIRPERSON)

PRIMARY SCHOOLS

Grove: Alixe Lowenherz; Convenor
Ellerton: Beth Jones/Cathi Coetzee
Kirstenhof: Andre van den Bergh
Pinelands: Alistair Weir
Rondebosch: Rob Hill
Rustenburg: Hilda Barry/Louise Kühl
SACS: Eloise Baker

HIGH SCHOOLS

Camps Bay: Ken Barris; Convenor
Fish Hoek Jun. High: Peter Fenton
Fish Hoek Sen. High: Greg Hawtrey
Rondebosch: Geof Kieswetter
Rustenburg: Anne Schlebusch
SACS: Derek Wood
Westerford: Jean Bottaro
Wynberg Girls': Gillian Anstee

Alan Cliff (Bergvliet High School: co-opted High School Study Group Convenor)

. . . . . .

GROUP A SUB COMMITTEES

Queen's Park: Margot Currie (in liaison with Messrs N. Faasen & E. Ungerer)
Gardens Commercial: Vicki Kasner
Rhodes: Andy Wood
Muizenberg: Esther van der Merwe) in liaison with Mrs A. du
Oude Molen Technical High: Franciscus Palm) Toit (SASSE: Junior Primary)

Overview of roles:

Programme Management and Design
Area 1 skills: research, problem solving, creativity and life skills.
Area 2 skills: questioning techniques, group teaching skills
Area 3 modules.

PRE PRIMARY AND JUNIOR PRIMARY INSET PROGRAMMES

PRE PRIMARY (MS S. JANSEN, SASSE)

Barkly House: Ms L. Arnott
Disa: Ms D. Buckle
Hebrew Pre Prim. Ms S. Singer
Lea: Ms M. Mc Fadyen
Menorah: Ms H. Gorin
Milnerton: Ms T. Krige
Monterey: Ms T. Scott
Valley: Ms C. Thomas

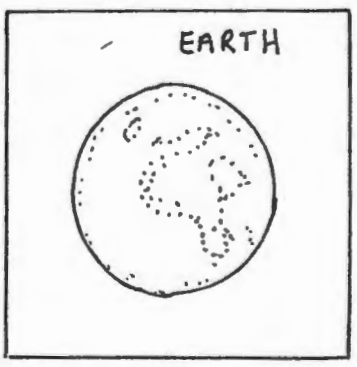
JUNIOR PRIMARY (MS A. DU TOIT, SASSE)

Preparatory Schools:
Camps Bay: Ms V. Fowler
Fish Hoek: Ms E.A. Barge
Plumstead: Ms H. Howell
Windsor: Ms M. Zanoli
Ysterplaat: Mr P.M. van Zyl

Overview of projects:

Pre-Primary
Phase one: creativity self-assessment.
Phase two: follow up workshops: promoting creativity in the pre prim child

Junior Primary
promoting open-endedness



GUIDELINES FOR AREA 3 ENRICHMENT MODULES

Area 3 modules should, at all costs, try to be geared to the real world and be involved in real problems. It should not duplicate or embellish work done in the ordinary classroom.

The following example of a Area 3 project comes from Eby (1984 p. 37):

Inventors and Inventions
(4th-6th Grades)

You are invited to participate in a research and problem-solving unit studying inventors and their inventions. Students who take part in this unit will read at least one biography of an inventor, create their own inventions, and give a speech about the inventions they create.

To be eligible for this quarter, you must do the following pre-task and turn it in to your resource teacher on or before.....

Pre-task

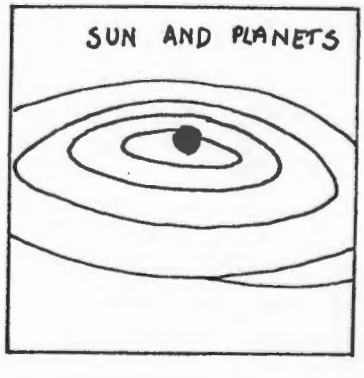
Invent a new toy, game, or mobile object using one or more milk cartons and any other materials you choose. Turn it in with a one-page description about it, telling how it works, who would enjoy playing with it, and how it would be packaged and advertised if it were offered for sale.

Your invention will be judged on the basis of creativity and task commitment. This means you should try to create an original toy, using lots of imagination. It also means that you need to be neat and careful. Show pride in your work by redoing it until it is just the way you want it to be. Here's a special hint: you can always do more than we ask for. The pre-task directions are for the minumum required. Going beyond the the minimum is rewarded in this programme.

There will be four to six students selected for each group. Please turn in your entry along with this official entry form on or before.... You must have your parent's signature on this form.

_____ student signature

_____ parent signature



Addendum B

AREA 3 PRE-TASK EVALUATION SHEET (Eby, 1984 p. 39)

EBY IDENTIFICATION INSTRUMENT

Student name_____ Std_____ Date_____
Module_____ Evaluated by_____
Description of pre-task_____

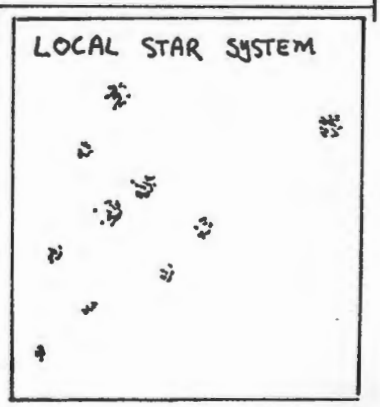
EVALUATION OF PRE TASK	HIGHLY SUPERIOR	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE
TASK COMMITMENT				
1. Is turned in on time or before	4	3	2	1
2. Shows accuracy and authenticity	4	3	2	1
3. Shows completeness and attention to detail	4	3	2	1
4. Shows care and pride of workmanship	4	3	2	1
5. Goes beyond the minimum required.	4	3	2	1
CREATIVITY				
1. Captures attention of reader or viewer	4	3	2	1
2. Shows originality and imagination (unique responses)	4	3	2	1
3. Shows flexibility and independence (redifines problem or goal)	4	3	2	1
4. Shows complexity of thought (depth of responses)	4	3	2	1
5. Shows fluency of ideas (many responses)	4	3	2	1

TOTAL SCORE _____

_____ ELIGIBLE (_____ or more points)
_____ INELIGIBLE (less than ___ points)

_____

(Additional copies available from Slosson Educational Publications, Inc P.O. Box 280, East Aurora, NY 14052)



Addendum C: ACCOMMODATING AREA 3 WITHDRAWAL ON THE TIMETABLE

Plan 1
Schools using the 9 day cycle with periods 50 minutes long would set aside one set period per cycle. The teachers involved in the programme as presenters would all be 'free' during this period. They would then either present modules concurrently or rotate duties.

Plan 2
Period allocation is random, depending on when presenting teachers have allocated time for their modules on the timetable. Pupils, therefore, will have to judge whether the Area 3 periods suit their own timetables and whether they are in a position to miss the affected periods.

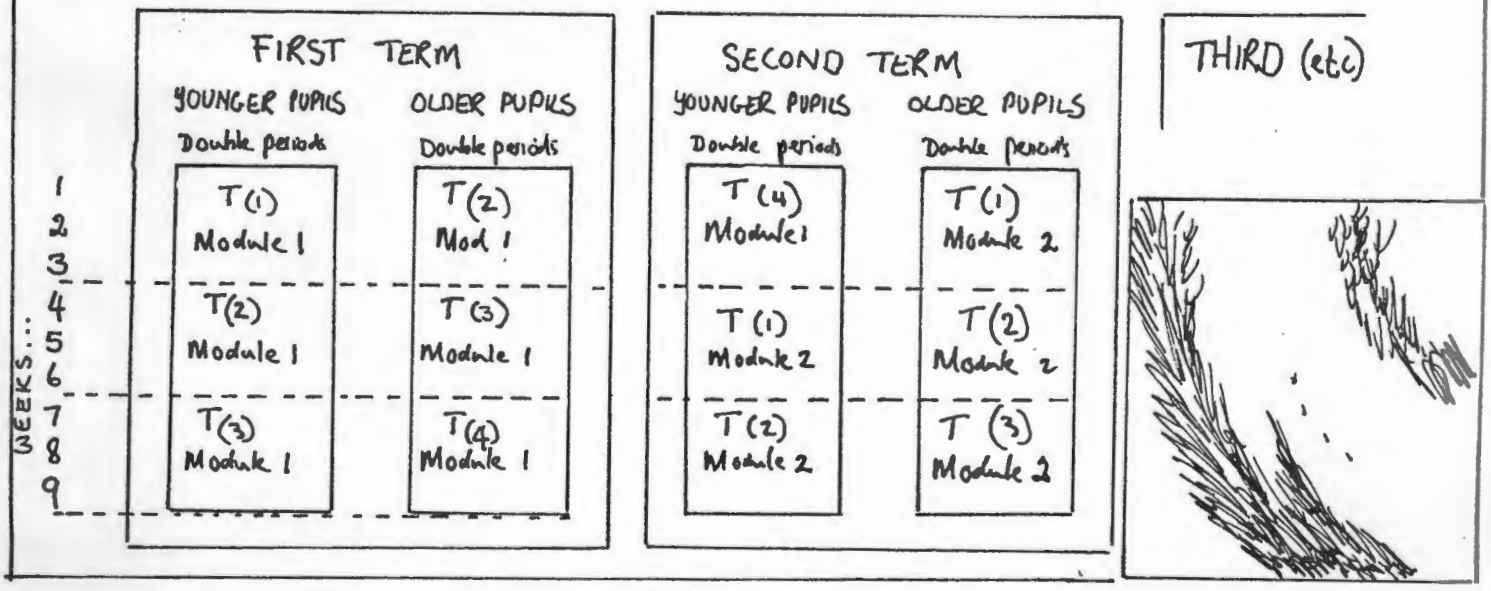
Plan 3
The school day is so arranged that sport, club, society activities take place during the day's programme either during an extended break or at some other time of the day. Area 3 modules would then be offered during the extended break, while other pupils are attending compulsory sport, club, society meetings.

Plan 4
2 suitable, consecutive periods are located on the timetable, providing an approximate time slot of an hour. Ideally speaking this slot should exclude, as far as possible, lessons that are traditionally regarded as more difficult, like Mathematics, Science etc. Language periods, for example, being more flexible, could ideally be timetabled into this slot.

The school must then decide what teachers will be presenting modules that year. Ideally speaking three teachers should be called upon to present modules which would then be done on a rotation basis in three-week cycles alternating Junior with Senior pupils. This would then permit a three week break for each teacher every six week in order to prepare his/er second module for the year. Each teacher will need to prepare two core modules in the year each differentiated, however, for younger and older pupils. S/he will present, therefore, four modules ir all (refer below:)

****

This school decided to run Area 3 enrichment along subject lines. This year, the English, Mathematics and Science subject departments said that they would like an opportunity to present Area 3 enrichment modules. Other departments who were also eager to present modules were told that they would be given an opportunity the following year.

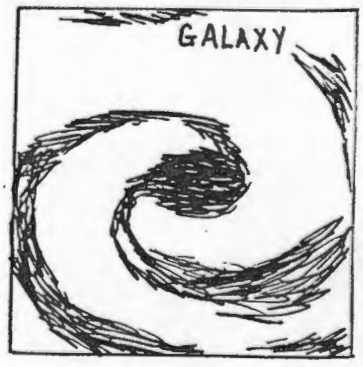


Addendum D

Use the following checklist to assess the efficiency of your programme

CHECKLIST FOR PROGRAMME CO-ORDINATORS	YES	NO
Area 1 Enrichment		
1. Is your school allocating specific periods for Area 1 skills' training?		
2. Is your staff aware of the kind of training taking place during Area 1 periods?		
3. Are subject groups finding ways of incorporating these skills during subject teaching?		
4. Is your Area 1 programme continually being reevaluated and updated?		
5. Are you and your staff aware of the comprehensive ongoing inset programme being offered by the Cape Town Teachers' Centre G.C.E. network? (refer pp. 6 & 12 of this guide)		
Area 2 Enrichment		
1. Has your school adopted a co-ordinated Area 2 system (like the one outlined on pp. 7 & 8 of this guide)?		
2. Is there a list of Area 2 pupils in your school?		
3. Does each teacher have a copy of this list in his/er record book?		
4. Does the Area 2 teacher individualize by using group teaching?		
5. Is each teacher who teaches a Area 2 pupil planning <u>at least one</u> lesson per week with this child(children) in mind?		
6. Are these lessons truly challenging the pupil(s) in question?		
7. Is a brief resume of each lesson being kept on file for record purposes?		
8. Does each teacher keep a subject enrichment file?		
9. Does each subject group run subject workshops to share and practise Area 2 teaching skills, for example, questioning, subject enrichment and group teaching skills?		
10. Is effective teaching being highlighted by being brought to the attention of the Principal, and shared during staff meetings?		
11. Is there a spirit of innovation in the staff and are all ideas being shared?		
12. Are you aware that the Teacher Centre's G.C.E. network will have specially trained teams of teachers who will be able to run staff development workshops at your school in Area 2 teaching skills? (Refer pp. 8 & 12 of this guide for further details)		
Area 3 Enrichment		
1. Has provision been made on the timetable for Area 3 withdrawal?		
2. Is there an effective system that allows pupils to withdraw?		
3. Are programme options fully advertised for all pupils?		
4. Are the Area 3 activities interesting, challenging, relevant?		
5. Are you aware that the G.C.E. network will be presenting Area 3 modules duriong 1987? (refer p. 12 of this guide)		

	Yes	No
Area 4 Enrichment		
1. Without even realizing it, do you have an Area 1 pupil? (What makes you think so?)		
2. Have you got together all his/er teachers to discuss and draw up an individualized programme?		
3. Are you assessing the success of this programme?		



Addendum B

ADDENDUM TO THE 1988 GIFTED EDUCATION QUESTIONNAIRE TO PRIMARY AND HIGH SCHOOLS

The Four Area Definition of Giftedness

When we drew up our new defintion of 'giftedness' which would form the basis of the Four Area Enrichment model, we identified the parametres mentioned below. Please indicate to what extent you agree with our sub-categories (5 = agree strongly; 1 = disagree strongly)

Giftedness:	5	4	3	2	1
is a variable present in *all* people;	17	16	11	6	7
usually manifests itself in a *specific* area;	15	31	10	2	0
is a *potential* that can be nurtured;	33	17	7	0	0
is a relative term.	26	11	17	1	0
We should avoid speaking of gifted person, but, intead, refer to *gifted behaviour* (Renzulli)	27	16	11	3	2

Components of the Four Area Enrichment model

Questions	5	4	3	2	1
Area One Enrichment for *all* children is an important facet of a G.E. programme	39	10	7	1	1
Area Two Enrichment is an important facet of a G.E. programme	29	20	9	0	0
Area Three Intra- and Inter-school withdrawal is an important facet of a G.E. programme	21	11	8	11	6
Provision for the Area Four child is an important facet of a G.E. programme	25	11	9	5	4
The Four Area approach is an adequate and appropriate response to the challenge of catering for pupils with gifts	8	18	16	5	1
On the whole, the Cape Education Department G.E. programme has been successfully implemented over the last two years.	3	17	14	8	3

STD	AREAS OF GIFTEDNESS	ACHIEVEMENTS	PROBLEM AREAS	LEAD-ERSHIP
(1)	raconteur wide general knowledge inventor		under-achiever absent-minded; spatial problems	
(2)	creative; design		50-points between NV & V scores; poor social skills	
(2)	facts and figures; computer; science			
(3)	read 'Lord of Rings' twice in Sub B; politics; computers		Mild haemophil-iac; poor co-ordina- tion	
(4)	playwright & director reader			
(4)	maths computers science	won mini-maths against older pupils	co-ordina-tion;	

Table C.1 Overview of selected information obtained from the profiles of six Area Four primary school pupils nominated by their schools. (The above overview excludes one pupil who was nominated because of high IQ scores alone)

STD	AREAS OF GIFTEDNESS	ACHIEVEMENTS	PROBLEM AREAS	LEAD-ERSHIP
6	music maths	W. Cape Youth Orchestra		
7	music writer computers	second in mini-maths		
8	robotics			
10	robotics	winner of geography competition		
10	music	finalists of nat-tional piano comp; national youth orchestra		
10	maths computers science	Std 8 & 10 mini-olympiad medalist first in science & computer olympiads	highly tense	prefect
10	all-rounder	winner local young historians competition Rotary service award; Eng Olympiad; selected for UCT poetry competition		
10	writer	approached by publishers	little disorga nized	prefect chair-person
10	well-read literature writer	published in 'English Alive'; poetry and prose prizes; approached by publishers		quietly strong leader

Table C.2 Overview of information gleened from profiles of nine Area Four high school pupils nominated by their schools